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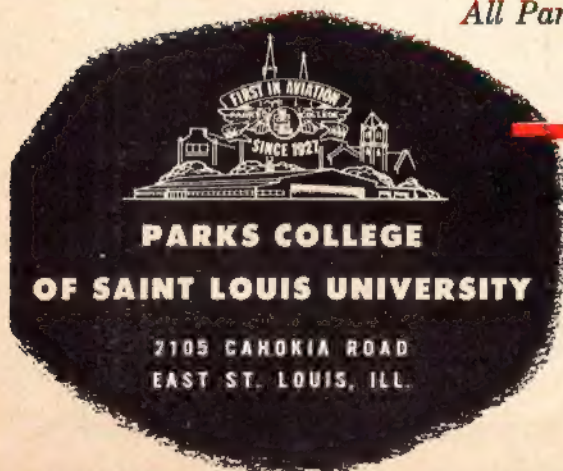
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This inside a wind tunnel scene, typical of many research establishments, was painted by artist Harold Stevenson as a salute to the fine series on "Engineering Jobs in the Aviation Industry" which Gene Kropf has done for ATH. You'll find this issue's installment on page 28.

# HOBBIES

## for YOUNG MEN

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## The Readers Write

Let's hear from you! Address all letters to Air Trails HOBBIES For Young Men, 304 East 45th Street, New York 17, N. Y.

Where to Get Jet Photos . . . I am a collector of photos and data on military Aircraft of the United States. I have a growing collection and would like to increase it. Because I get your magazine every month I know that you answer questions sent in by the readers. I would appreciate it very much if you could tell me where I can get available photographs and data on jets of the United States Air Force.

*Michael Szabo, Staten Island, N. Y.*

● Aeroplane Photo Supply, Box 195-A Toronto, Ontario, Canada. Harry McIntyre, Box 423, Ocean City, N. J. Aviation Photo Service, 1130 South Maple St., Apt. 2, Inglewood, Calif. Airphotos, Box 117, Jamestown, New York.

Hobby Club Emblem Winner . . . Just a note to thank you people for publishing our little model club crest. It was very well received. I sell magazines in our hobby shop and Air Trails Hobbies is one of the best sellers, especially this month's issue. Thanks for the ten dollars. The club had quite a do with it—movie pictures, hot dogs and Cokes.

*G. Walker, Winnipeg, Man., Can.*

From Italy . . . I have with real pleasure noticed the fine display of Italian Air Force's World War II planes on pages 38 and 39 of recent issue of A.T.H. Anyhow, I regret having to inform you that the words "Reggia Aeronautica" have no meaning on this case as the word Reggia means king's home or Royal Palace; you should have written Regia Aeronautica; Regia=Royal and Aeronautica=Air Force.

For what concerns the nice drawing for the Meridionale Ro.43 on page 39, I have to inform you that the lower wing was a straight one, without any inverted dihedral while the upper one was a gull wing as illustrated.

*A. W. Mizzan Jr., Milan, Italy.*

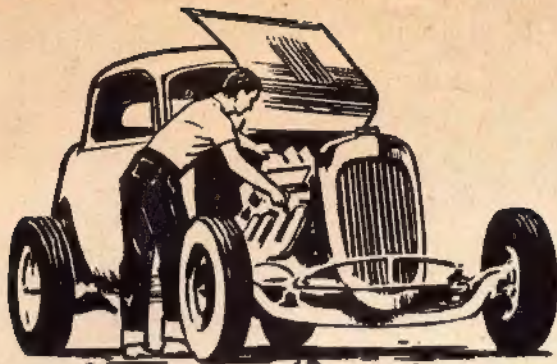
(Continued on page 56)

The Readers Write	4
Model Boating	6
Everything Under Control?: R/C News—H. G. McEntee	12
Model Car News	16
Speaking of Hobbies	19
"Merrimac" and "Monitor"—Capt'n Frank Van Buren	20
East's Meet West's	23
Auto Progress: The Cadillac Story—Douglas Rolfe	26
Engineering Jobs in the Aviation Industry: Part 3 —Gene Kropf	28
Air Progress: U.S. Fighter Development—Jefferies	30
Expanded Polystyrene—H. A. Thomas	32
Auto Design Competition—Cash for Your Dream Car	34
Jersey Jester: Free flight model—Frank Ehling	35
Compact-Pulser—H. G. McEntee	36
The Colt Story—J. M. Triggs	38
Hobby Model World—Reports From All Over	40
Model Rail Racing—D. J. Laidlaw-Dickson	44
How to Shoot Model Boats in Action	48
"Teenie-Genie" Half-A Stunter	50
Job-Career-School Guide	54
Calendar of Hobby Model Meets and Shows	56
Boat Design Competition—Cash Prizes	60
Tech Topics	64
Aircraft Design Competition—Cash Prizes	66
Q/A—Your Questions Answered Here	68
Jim Walker's Firecracker—Engine Report	76
Hobbies' Showcase	78
Trick Stuff—Cash Prizes for Your Magic	80
What's Your Hobby?—Cash Prizes for Photo & Report	81
ATH Blue Ribbon Kit Models	82
CG Electronics' Non-Selective Audio Frequency Equipment	84
"My Favorite Model"	86
Hobby Club Emblems—Cash for Your Club Insigne	88
Advertisers' Index	88

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# MODEL BOATING



Drop your hook, matey, and we'll send over a skiff to bring you into the dock. Meeting is about to start and we know you want to get in your 2c worth!

■ More and more unusual boats are being built these days, and while the excellent kit jobs still form the backbone of the model boating activity, we get a big kick out of such individualistic jobs as the Hog Island Freighter pictured here. It is the work of Charles S. Mooney (22 N. 3rd St., Columbus, Ohio). He is a long-time reader of ATH and a most avid boat and R/C fan, says this craft is the most fun to operate of any he has made. Built to  $\frac{1}{8}$ " scale, the ship is five feet long and weighs about 40 lbs. Two Lionel train motors supply the drive power, and these are fed by the large bank of storage cells that can be seen amidships. Cell capacity of 30 ampere-hours assures long safe voyages at the speed of about 4-5 knots. Radio equipment is Schmidt 5-channel reed, giving steering, forward, reverse, full and half speed. More than a year of time was put into the project, and judging from the sound of Mr. Mooney's enthusiastic letter, the time was well spent.

What comes as near as anything to being the "Nationals" in the miniature speed boating world is probably the annual 2-day Regatta held by the International Model Power Boat Assoc. at Detroit, with the Detroit Model Power Boat Club always acting as host. The Regatta was held this year with weather being very hot. On the first day a lot of attempts were made but there were many incomplete runs; frantic overnight work paid off, as the boats did lots better on the 3rd. Results were:

Class A (31 boats were entered but only a few finished the runs)—winner was Ed Kalfus (New York) with 62.93 mph. Class C-1) Bob Graham (New York), 57.14; 2) Charles Baxmann (Detroit), 50.27. Class D—1) Wesley Pardee (Detroit), 71.42; 2) Bill King (Toronto), 69.23; 3) Pete Yanczer (St. Louis), 56.96. Class E-1) Al Chiavarini (Detroit), 77.58; 2) Bob Graham, 76.59; 3) Charles Baxmann, 50.70. Class F-1) Billy Baxmann (Detroit), 56.60; 2) Robert Colson (Detroit), 53.73; 3) Ricky Baxmann (Detroit), 50.70. Slowest Speeds of the Day: Howard Smith (Detroit), 9.10 mph; Norman Flynn (Detroit), 29.31; Robert Graham 43.68. Outboard Class (6



Charles Baxmann, president of the Inter-Model Power Boat Association, with his Class F world's record holder. Engine is Dooling .29 (5 cc). Timed at 63.82 mph.

boats entered, but only 2 completed runs in Senior Division): 1) Bill Fink (Indianapolis), 11.59 mph; 2) Warren Pugh (Indianapolis), 8.50. Looks to us as though some of you boys who are claiming much higher speeds with outboards should join up and enter in IMPBA races—appears that you would have a good chance of collecting some hardware!

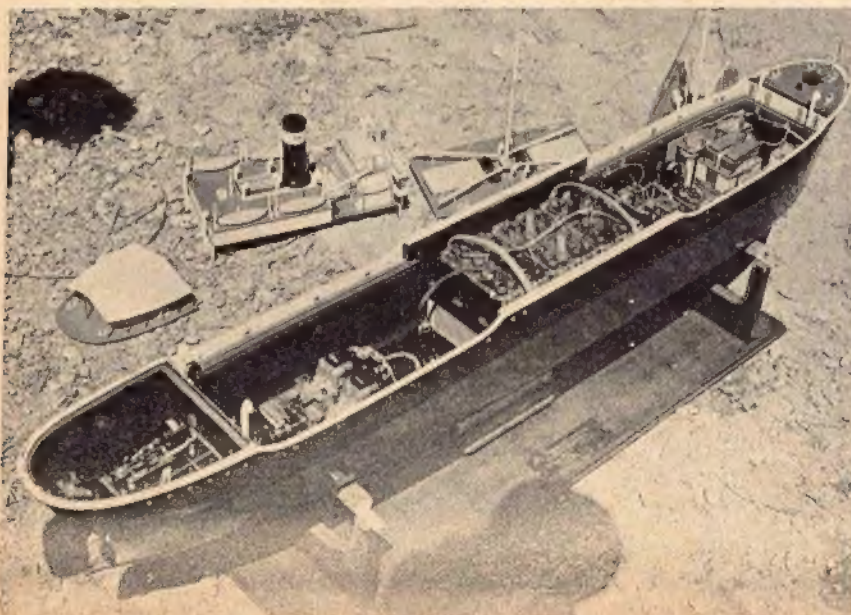
Three boats were entered in the Proto Class on the second day, with R. Mason (Detroit) coming out top man; he had 360 points. F. Raya (Detroit) was second with 380 points. First-place prize winners for the first two heats, in the various classes were: Class C—Bob Graham, 46.15 mph; Class D—Pete Yanczer, 83.33; Class E—Bob Graham, 77.58; Class F—Billy Baxmann, 55.90. Two "consolation prizes" were put up by Bob Graham for the next two highest speeds below the winners in any of the Classes, and these were awarded to Al Chiavarini (75.63) and Charles Baxmann (73.77); Bob himself "won" lowest speed of the day with 42.05 mph. No outboards were run but in Proto winner was Robert Mason, 300 points, followed by Amos Alexander (Canton, O.) also with 300.

The third heat this day was a Nomination race, with these results: 1) Bob Graham figured his boat would do 50 mph, and hit it exactly; 2) Larry Werner nominated 44 mph, ran 43.90; 3) Robert Colson nominated 54, made 53.89. Pete Yanczer, with the aid of Wesley Pardee, built a new fuel tank for his boat, and after the last heat on the 3rd, asked to be timed for a record run; his Class D boat set a new World Record with a speed of 85.71 mph!

The Speed Races scheduled for Baltimore were rained out. Going back still farther, we have received results of the IMPBC (Indianapolis Model Power Boat Club) regatta at Indianapolis, the first attempt at such an event by this club. Quite a few visitors were in town from distant points, having come to attend the Indianapolis 500 big car race, and many came out to watch the model boating fun; all types of boats were exhibited and run, but the "show-stoppers" were the scale R/C cabin cruisers. In the Beauty Event for best-looking boat in the regatta, winner was the virtually perfect Chris-Craft Motor Yacht of Bob Welker, which carries audio tone equipment designed by Bob. Running events were included for R/C, free-running speed boats, and steering events for both radio and non-R/C boats. Merchandise certificates plus three club-donated trophies caused a terrific building spree, with practically every club member striving to enter at least two events.

The R/C boys were hampered during the afternoon by rain (our informant, Warren Pugh, called it "California Dew," but he doesn't have to face the wrath of the West Coasters!), and they also had a bad time with interference. Unfortunately, time ran out before the source of the interference was located; bet these boys will have an ATH Direction Finder and Interference Locator working before the next regatta. Anyhow, the entrants

(Continued from page 57)





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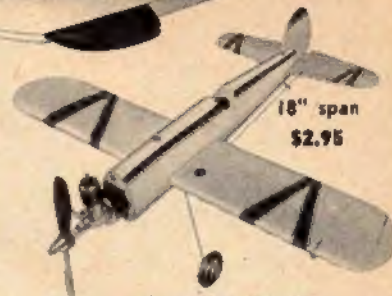


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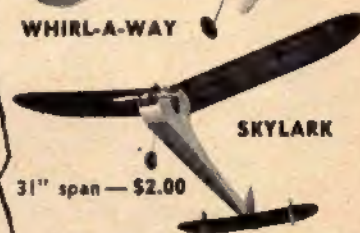
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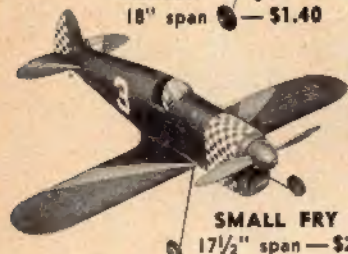
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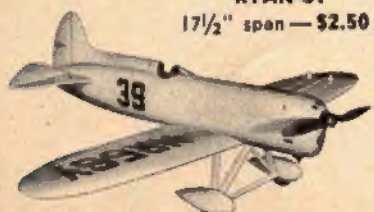
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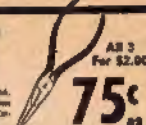




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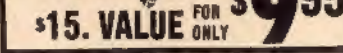


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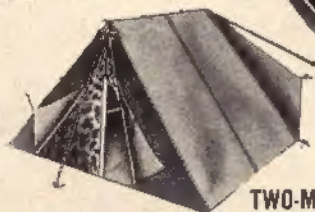
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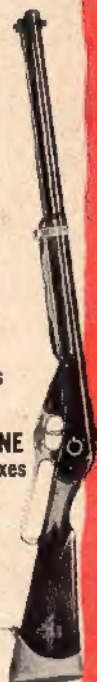
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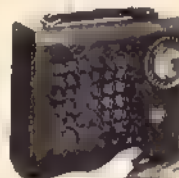
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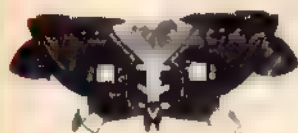
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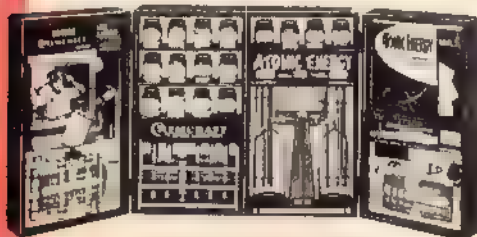
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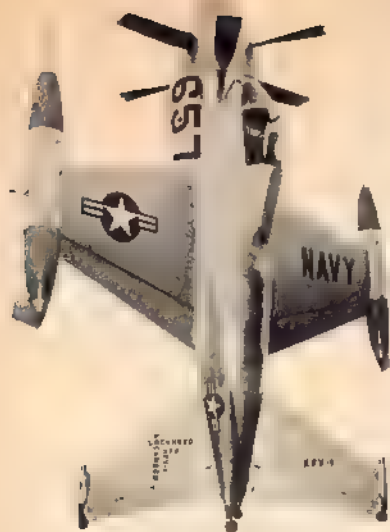
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## Everything Under Control?



**We've got so much news here, it's hard to tell where to start; sit down, let's go!**

■ Capt. Arthur J. Rosenbaum, photo officer with the Continental Army Command's Arctic Test Branch at Big Delta, Alaska, shot that Berkeley Cessna Bird Dog equipped with an original landing gear patterned after the Whitaker tandem wheel set-up. Old Wasp. Captain Rosenbaum says these gears make possible rough-field, straight-line take-offs and safe rough-field landings for both models and the full size planes. He recommends that R/C'ers give it careful consideration.

Along with two others, the captain's current project is a 72" Berkeley Cessna 170 for RME. Equipment: a home-made (by base electronics experts) single gas tuber, Ectron rapid-pulse stick controller and Multirol escapement. Says he, "We hope it works! But at least we have a 7,500 foot runway to fly from." Picture was shot with a Rolleiflex 2.8C, 1/50th at f/22 with red filter on Ansco Superpan Press film.

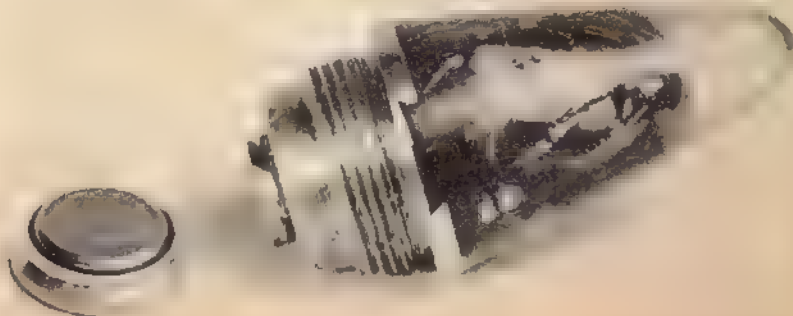
As the growing membership of the "Down Elevator Club" knows, an elevator stuck in the down position can be tragic; Earl Lombard (51 N. College St.,

Washington, Pa.) has a simple gimmick that enables him to fly with or without down, as he wishes. He simply elongates one hole on the elevator horn, (see sketch top, right, pg. 15) so that the pushrod can give full up movement, but no down. Light springs hold the elevator centered when the rod moves toward the down position. Earl finds this most helpful when trying out new equipment, or on those days when things just don't seem to be going right. He also uses this arrangement with a deBolt Multi-Servo and Neutral Compensator.

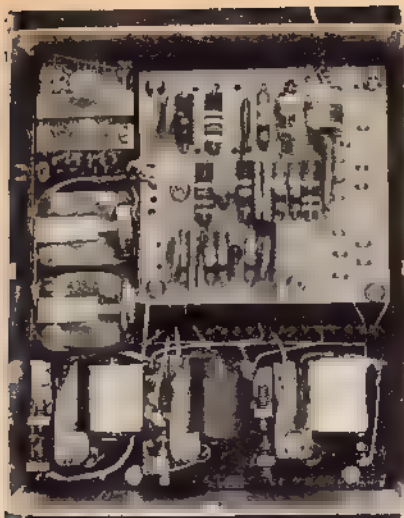
Shock mounts for engine mounting are O.K. for the larger planes, but pretty bulky for Half-A and small A planes. Until suitable rubber mounts can be obtained for the little jobs, Frank Doty (Route 2, Chardon, O.) has found the mount shown (sketch, top left, p. 15) satisfactory. He has used them in a Live-wire Kitten, and basic ingredients are Berkeley 1/2" face bushings and Walsco 7083F rubber washers (get these at radio supply stores). Thick-wall rubber tubing insulates the mounting bolt from the hole in the firewall. The metal bush-

Miniatute radio transmitter installed in plastic nose of 20-mm projectile with its mercury battery. Operating life is 200 hrs. Xmtr can withstand shocks 30,000 times pull of gravity. It transmits uniform am-

plitude signal which appears to vary as projectile spins and xmtr coil and antenna change position. Receivers stationed along firing range pick up signal and feed it into bank of oscilloscopes for photos.







De Haas' tiny 2 3/4 x 3 1/2" reed rcvr.

ings must be long enough so that the ends meet when the nut is tightened up enough to compress the rubber washers a bit. Frank says such an installation on his Kitten absorbs most of the vibration, yet holds the engine firmly enough to prevent the thrust line from shifting; only two of these mountings are used in the Kitten. Frank hopes some manufacturer will come out with "1/2 inch Lord mounts" for engine and receiver mounting. And while wishing, he says he would like to get a sub-miniature 0-3 ma. meter that could be put right in the plane, and which would weigh only half an ounce or so. It would be handy, all right, and we have seen tiny meters of about 1 oz. weight that might do the job; for example, the Model 100 meter made by International Instruments, Inc. (New Haven 11, Conn.) has a diameter of 1" and weighs about an ounce. Price would be high, though, probably around \$12 each, and whether the meters would stand up to crashes is another point to consider.

The rather beat-up Bootstraps used as a club trainer by members of the SEV/RCG developed a warped fin and it looked as though extensive repairs might be required, or at least a lot of linkage shifting, to make it steer correctly. However, an easy cure was found. John Worth (Box 9, Hampton, Va.) sent in sketch (pg. 15) which shows use of trailing edge stock to counteract the warp. Cemented to the rudder, the balsa strip gives an offset rudder effect, and the plane travels straight with the original linkage settings. Simple solution to a common problem.



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## EVERYTHING UNDER CONTROL?

Since this is being written on a sweltering summer day, we sure envy George Swank, seen in winter attire on pg. 14, holding his big symmetrical-wing stunter. This plane is very much the same as one that Harold deBolt has been flying most successfully, and is a deBolt design. Data on the ship was given in this column in the May '55 issue; George's version has a Fox .35 with 3-speed exhaust throttle. It is controlled by a Schmidt reed receiver, through Schmidt and Dmeco servos. At the time the pic was taken the plane had not been flown—too cold!

Tiny reed receiver (top, pg. 13) has been built by G. L. De Haes (Irving, Texas) which weighs about 4½ oz., much of this weight being in a protective case. It measures 2½" x 3½"! This is a five-channel receiver, and most unusual part of project is that Mr. De Haes built all the relays and the reed unit himself (he's a jeweler!). There are three relays made along the lines of the Sigma 4F; these are in a row at the lower part of the picture. Above them at the left are two more of a new design he has been developing. We don't know about the new ones, but the "Sigma-type" units weigh about ½ oz. each. The reed unit is at upper left and the reeds appear to be of music wire. Tubes used are two CK542 and one CK-538 and are beneath the plate holding the resistors; a single Eveready 505 battery (22½ V. and 4/5 oz.) serves as B, current drain being extremely low.

The receiver operates two Bonner servo units, which have had the original motors replaced by 1½ V. motors; also, the rudder servo has been made self-centering. The transmitter used with

Bill seen in Europe is 5-year-old R/C "Radio Queen." Beesled-up one has .29 diesel; spans 82"; 3-tube; 7 lbs.

this receiver has a total B drain of 6 ma., and uses a temperature-compensating resistance-stabilized tone generator; it is hand-held. The receiver is used in a rugged 66" span plane powered by a Veco .29, total weight being about 5½ lbs.—and to think it could be carried easily by a Half-A plane!

Lots of club and contest doings to report on this month. An interesting note is that Chuck Hollinger took first place in Multi-control radio event at Pacific Northwest Meet, using the Cub described in ATH early this year. Plane was equipped with Babcock single-channel receiver. Same type receiver used by Jim Lackey, first-placer in the Rudder class.

First Annual Invitation R/C meet by R/C League of North Carolina was held at Chapel Hill. Saturday weather was fine and there was lots of flying, but Sunday was a stinker; many tried to fly anyway, and the wreckage piled up rapidly. R/Cers came from long distances to attend, including Harold deBolt, Frank Schmidt and Lou Errington. Quite a delegation was there from the SEV/RCG, including Helmut Kuehnle with his dual simultaneous proportional plane. Sarah Schenck went down from New Jersey to fly her Beam, which did well for a time, but it was later lost in the woods along with several other wandering ships. The usual deluxe bull sessions were held each evening.

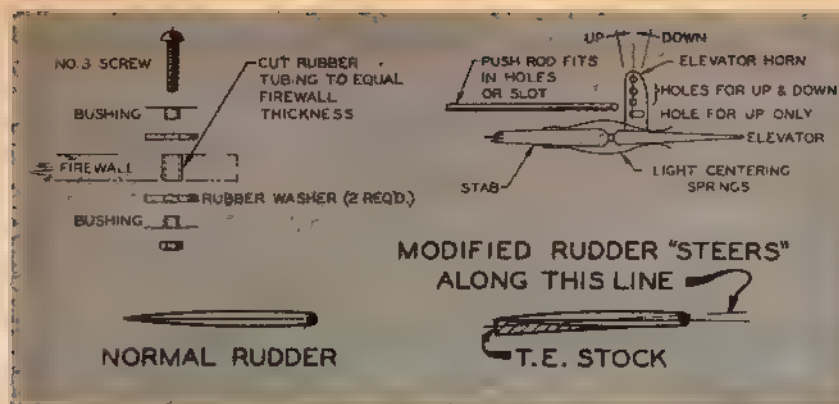
Brief note from Claude McCullough (Route 5, Ottumwa, Iowa) tells that the Cedar Rapids meet was practically frozen out, due to most unseasonable weather; Mac says nobody wanted to take his hands out of his pockets long enough to



Scale R/C (left) by Kenneth Makepeace, El Dorado, Ark. (Fred Prothro holds). Has 1-piece wing which lifts off fuselage to open up space 1' SQUARE and 2" deep which holds all radio gear. Cub .14 for power; silk covering; tricycle gear gives straight-line take-offs.







Top, left: shock mounts for Half-A and small A planes by Frank Doty. Top, rt.:

Earl Lombard's answer to "down elevator" grief. Bottom: Worth's warped fin idea.

put in a flight. However, some did brave the cold, and R/C results were: 1. Maxey Hester (Des Moines); 2. K. H. Wright (Kansas City); 3. Merrill McCoy (Des Moines). Wonder where Paul Johnson was? Mac says Jack Williams has a Beam fitted with the RME system that was shown in the 1955 Air Trails Model Annual, and test flights show it works fine; looks like a hot contest ship.

**Big Regional R/C contest** was sponsored by R/C Club of Detroit and we have fine report of results from Ernie Kratzet. There were 17 entrants in Multi and 30 in Rudder-only. Fine weather prevailed both days, and there was only one fly-away the whole weekend. A few spectacular crackups, as usual. Ernie flew his ESKimo biplane, which did quite well in spite of a sick engine and loss of the 10 oz. spinner required for proper balance; incidentally, he says he passed out quite a few copies of plans for the biplane, has more if any readers are interested. Write to him at 482 St. Clair Ave., Grosse Pointe, Mich.

Harold deBolt cleaned up the top hardware with his two-channel Aeronca, taking home the Great Lakes Trophy and the Bramco Trophy for winning the Speed event, in addition to the Multi class cup. The Speed event was a real success; two markers were set up 300 ft. apart, and entrants were clocked on time for one lap around them. Ernie desires marker spacing be greater—perhaps 1000 ft. Anyway, deBolt made the single lap with a speed of 29.6 mph, flying his 5-reed plane, while Ernie made 25.7 mph with the ESKimo. Seventeen planes were

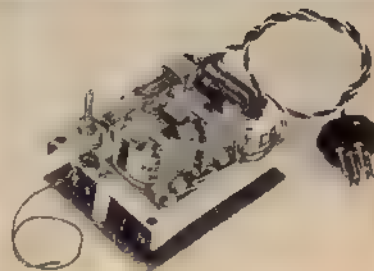
(Continued on page 00)

Left—frozen Swank (see column). Below: 8' English R/C scouter. 20-oz. batteries replace nose ballast; 2,000 escapement movements; 1,200' towline; Chinn design.



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## Model Car News



Interested in miniature autos and all the things  
that make the wheels go 'round? You are invited  
to join the gang — come on in! The track is fine!

Big MG Car Contest sponsored by I. Magnin Co. recently came to an end, with the happy winner being Russell J. Anderson of Reseda, Calif. Russ is happy because he copped the big prize—a full-sized 1955 MG sports car! I. Magnin Co. worked together with Gough Industries—a West coast MG distributor—capitalizing on the do-it-yourself trend. Entrants had only to purchase and finish a kit of the "MT" sports car, a very complete all-metal kit made by Chas. Wm. Doepke Mfg. Co. The kit is copied closely after the real MG, but since it is not an exact copy it is called an MT.

Results were tremendous, and while we have no figures on the total number of entrants, included in the top ten were a housewife, two teen-agers and a physician. Entrants from the whole Southern California area were represented, and judges were picked from MG agency officials. Winner Anderson, whose hobby is model building, is an engineer for the City of Los Angeles. That he is expert at it was seen in the beautiful workmanship on his model, which had perfectly executed small details such as the instrument panel, door handles, license plate holder and lights.

Another model car contest which also had a big car angle in the payoff was conducted for some time by Monogram Models, with closing date at the end of July. Here the top prize was a \$5000 Cadillac coupe, with other big prizes in U. S. Savings Bonds, and in cash. Entrants to this contest didn't even have to build a model; all they had to do was complete the sentence "I like Monogram's all-plastic Cadillac model because . . ." The best "because" will bring some lucky modeler a dream boat for sure!

Lots of interest in reed valves among the speed boys. The tiny Space Bug has

been so successful that everyone has been trying reed intake valves on all sorts of engines. We learn that AMRCA President Bill Cronin has a spur-gear car powered by a Dooling which has had the usual rotary valve replaced by a reed type valve. Bill laconically notes that as usual with all new creations, there were bugs present.

Cool cloudy weather and high humidity held speeds down at the race at Evansville, Ind., but there was a good turnout and a good time for all. Winners were: 1. Walter Wilson, Jr., 141.95 mph. 2. Walter Wilson, Sr., 140.62. 3. Phil Smith, 138.67. It is interesting to note that Bill Cronin was running Phil Smith's car by proxy, and did so well that he nosed himself out of third place, coming in 4th with 138.24.

Weather bothered the boys at Detroit ARMCA race, too; day started out rather poorly, so not too many showed up to take part, but it later turned out very nicely. Those who came had a fine time, and saw Joe Kantrow, Jr., set a new track record in Custom Proto. Results were: Custom Proto—1. Joe Kantrow, Jr., 146.58; 2. Joe Kantrow, Sr., 144.23; 3. Robert Henich, Jr., 139.75. A Sportsman—1. E. O. McCullough, 123.97; 2. Jim Cecil, 112.07; 3. William Hodges, 109.36.

New Castle (Ind.) Miniature 500: bad weather again! This time it was cold; in spite of it, though, there was a good turnout, with many out-of-towners to join the fun. So cold that some of the builders were using heat lamps on their fuel tanks, and everyone expected frost that night. Several oldtimers showed up including Steve Simmons and Carl Meyer; the latter has renewed his AMRCA membership, and expects to be active from now on. As had been expected, Carl Franz was the man to beat



With camera 5' from model realistic shot (left) is by J. E. Laumer, E. Gadsden, Ala., of his Mercer Raceabout built from an Old Timers kit. Plus X film, 3M flash bulb.

—but no one could. There were 35 cars entered. Winners: *Custom Proto*—1. Carl Franz, 144.00; 2. Charlie Flynt, 142.85; 3. Walter Wilson, Jr., 141.06. *Custom Sportsman*—1. Carl Noward, 120.64; no other official times recorded. *Class B*—1. Guy Richards, 93.84; 2. C. A. Hardy, 68.80.

Night races held by the Toledo club continue to be popular. Turnouts are good and the speeds pretty fair. Main thing is that these sessions have made it possible for some modelers to race who just can't do so over weekends, and also, several new members have been brought into the club via the night races. AMRCA rules prevail, and a trophy will be awarded at the end of the season to the member who has the highest point standing. Last reports had Jack Hines leading in Custom Proto, with Paul Walterreit topping the Arrow class. An old member, Chuck Schultz, attended a recent race and ran his Arrow with results so good that leaders in this class are a bit worried.

Western Regionals report has been received from Carl Dunlavy (610 E. Grand Blvd., Corona, Calif.), who notes that a rash of cars breaking the cable retaining clips has them studying means of preventing any more such accidents. The first such crash occurred when Ray LaBahn's car broke loose at the Corona track (this was the first such crash in the history of the track, however). The car was demolished, but Ray salvaged his engine, borrowed a car from Al Terra and took second at the Regionals the following week!

First crackup at the Ontario track came when Woody Woodward's car piled into the 2 x 12 plank crash wall, splintering the wood and almost going through it.

The car was a total loss. A few minutes later, the Borden Spur car of Ed Baynes, Jr., hit the wall within four feet of where Woodward had struck. About this time a lot of the boys felt like packing up and going home; all three of these crashes had come about through break-

(Continued on page 71)

Can you imagine winning a real MG? Just for building model . . . see story in column.



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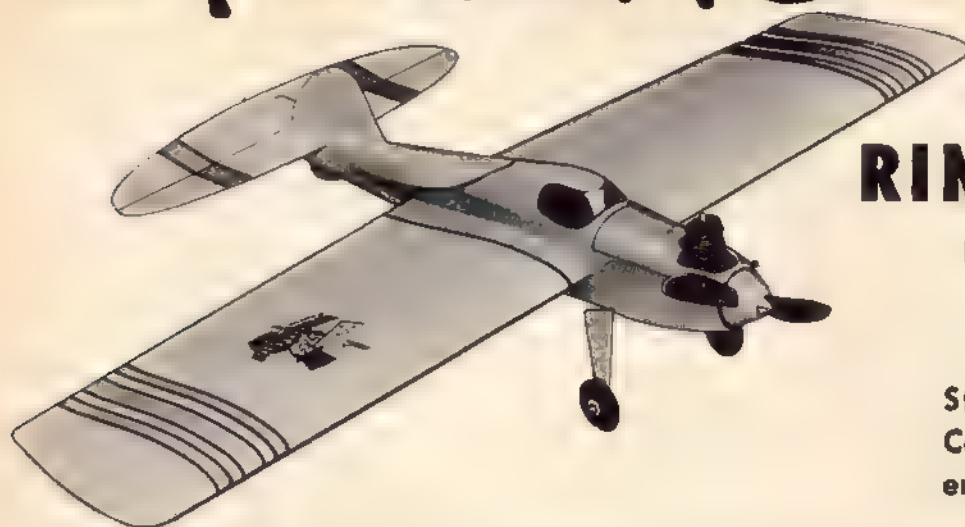
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Please advise us if you move, giving old address and new address; allow four weeks for change of address; address subscription mail to Subscription Department, Air Trails HOBBIES For Young Men, 304 East 45th St., New York 17, N.Y.

# Speaking of HOBBIES

## SOMETHING TO LOOK FOR: OUR NEW NAME WITH SOME SPLENDID FEATURES AND MODELS

Next month "Air Trails Hobbies For Young Men" will come to you with a shortened name: "YOUNG MEN." You'll find little else changed. There'll be no decrease in the number of pages; there will be no increase in price. If you're an ATHFYM fan, you will like YM since it will have all the good things of ATHFYM—only more so! What we mean is that certain departments will get even more coverage—you'll find the Model Boating section larger, also the Hobby Model World department. So we're streamlining from a seven-syllable title to a two-syllable one . . . all of which reminds us—speaking of English . . .

We have for you next issue, among many other fine items, one of those special-survey-for-high-school-students. This one is titled: "Is This Your Line?—The Magic World of ELECTRONICS." Don Downie did this lengthy study for us and it's top drawer. If you, or anyone you know, is even passingly interested in electronics, read carefully what Mr. Downie has to report. Know what's wrong with many young fellows breaking into electronics today? They can't write understandable reports. Nossir, many leaders in the industry have asked us to plead with you budding engineers to please pay attention to your English instructor because the inability to express yourself properly in writing later on could hold you back tremendously.

What else in next month's issue of "Young Men"? Well, see those models pictured there at bottom, right? Cast your eyes over that sleek semi-scale F-86-like control line stunter. It's the work of Don Hoag, Youth Director of the Newark, Ohio, YMCA. Takes a .35; has span of 56"; overall length of 33"; weighs in at 47 oz. The name? Oh, yes—"Wicked Witch."

That boat is for .099 to .14 powerplants. It's a scale hydro-foil copy of von Schertel's VS-6 patrol boat. You'll really swamp 'em at the lake when you show up with this git-up-&-go job. If model cars is your major interest—even if they're not!—you'll have a hard time passing up that powered sports car which mounts on a Cameron chassis. It performs fast enough to awe 'em all, yet slow enough so the audience can see what it looks like.

Enough for now—see you next month. And remember, young or old, expert or novice, whether you're a modeler or not—the mag to ask for is "Young Men"!—Al Lewis.

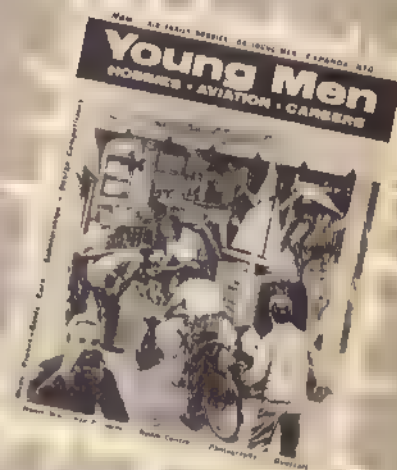
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## NEXT MONTH LOOK FOR THIS COVER:



## LOOK FOR THIS NAME:

## Young Men

- HOBBIES
- AVIATION
- CAREERS

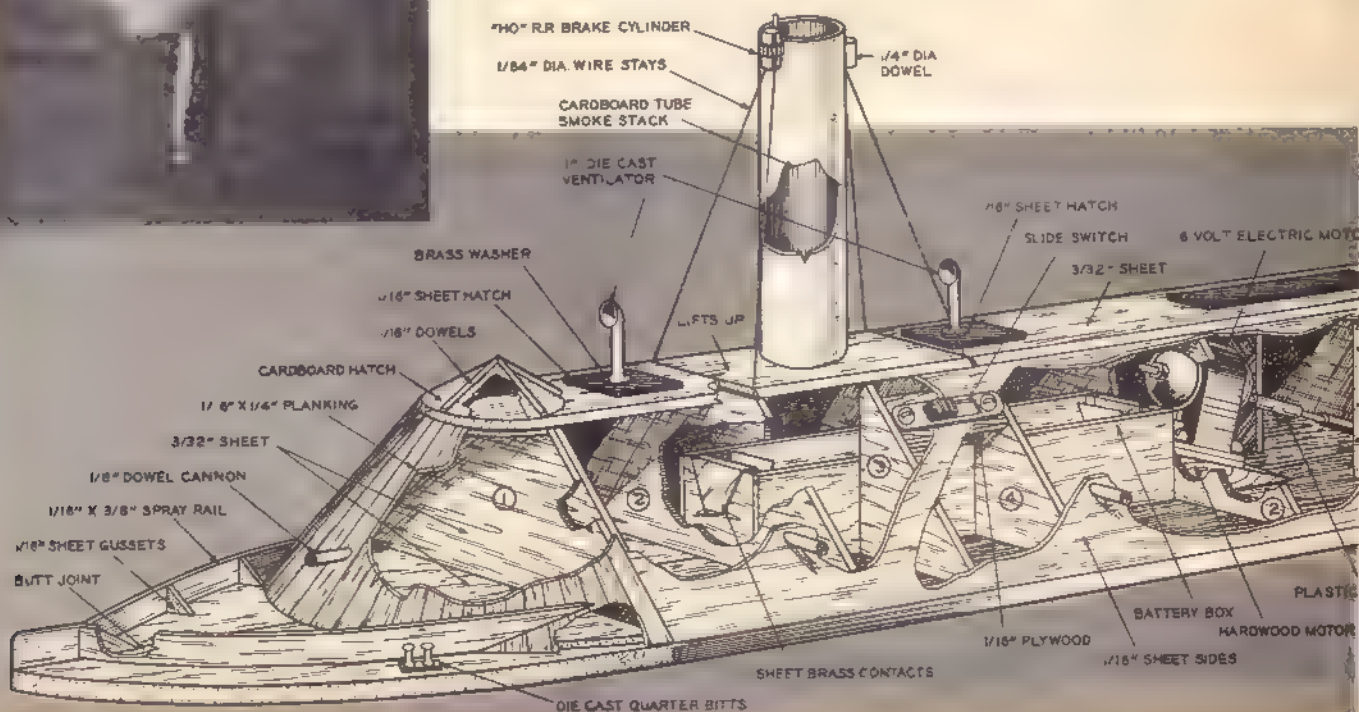
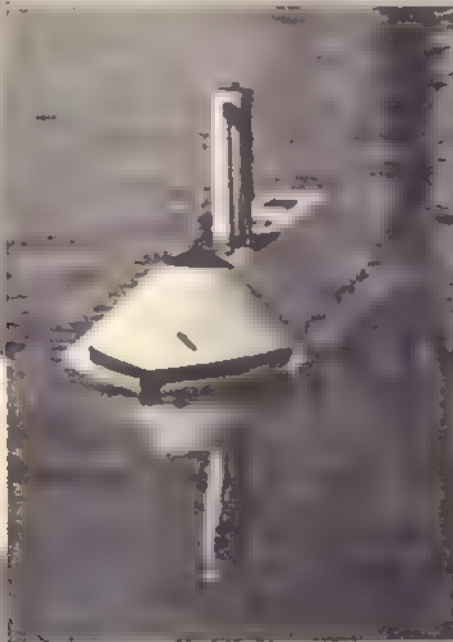
## LOOK FOR THESE MODELS:





# "Merrimac" and "Monitor"

By CAPT. FRANK VAN NUNN





## The original "cheesebox on a raft" and "floating iron works" in model form

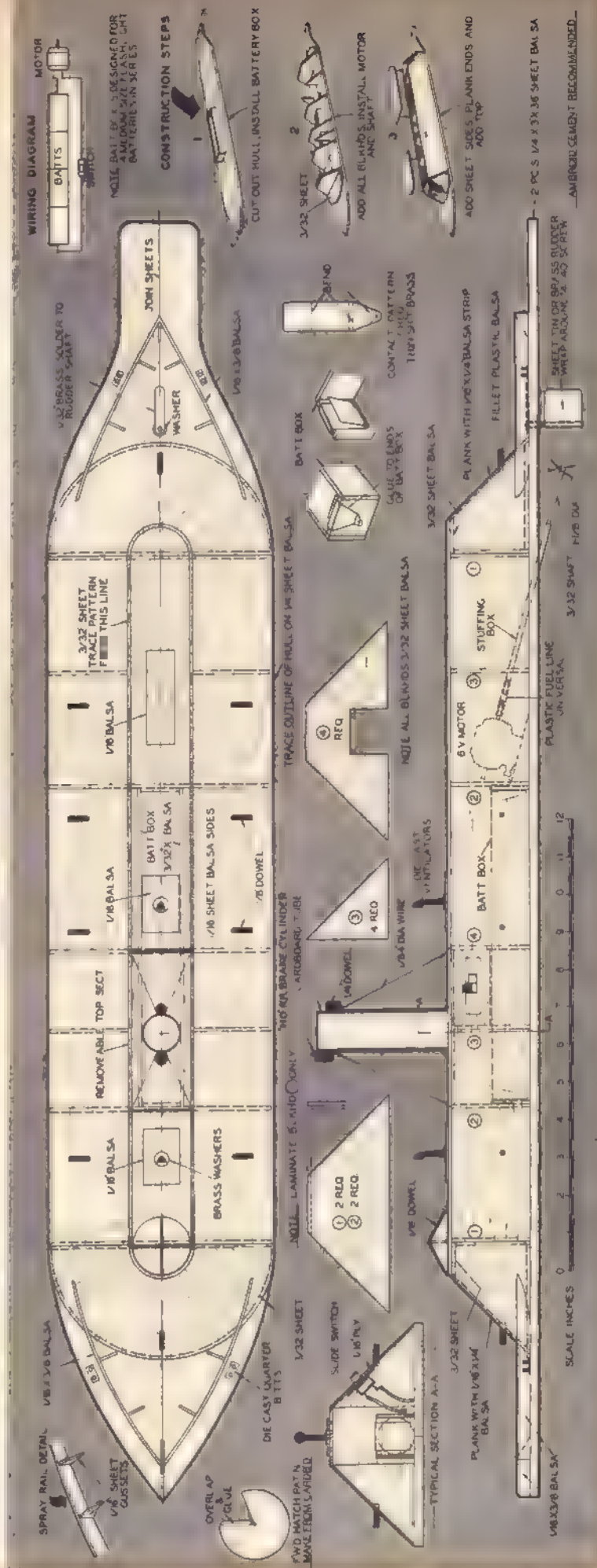
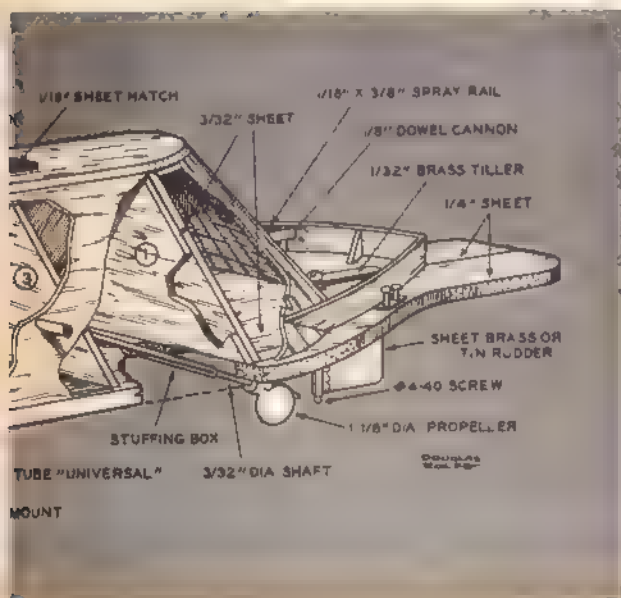
■ You'll have a hard time finding two operating model boats that will produce the "ohs" and "ahs" these elicit whenever they appear in public. And as for ease of construction, we'll stack these up against anything this side of a straight balsa log.

To appeal to the greatest possible number of model boat fans one model calls for electric motor power; the other takes a Half-A engine. Idea is that you and your buddy can each select type of motive power you like most, build your ships and then "shoot it out."

If you have any genuine "you-all" spirit, you'll probably want to tackle the "Merrimac." But we won't tell if some good Southerners end up with the "Monitor"! Both of these craft are "waterline" models which means they go together easier'n pie and look fine on the mantel! The "Merrimac" is scaled  $\frac{1}{8}$ " to the foot; the "Monitor" is  $\frac{1}{4}$ " to the foot (its size can be doubled if you want to use a larger engine—in such case you construct a hull).

"Merrimac" construction: start "base" by cementing two balsa sheets together; cut bulkheads; make battery box and cement in place. Add motor block and motor; install wiring; glue stuffing box (tube) in place—a plastic tube can serve as the universal. Add bulkheads, then sides, follow with switch. Fore and aft ends are now planked. Add top and removable hatch (tack-cement this in place). Sand entire model, give coat of wood filler, sand smooth again. Next the smoke stack—a cardboard tube or cardboard covers from flashlight batteries. Cement stack in place, add bracing wires. Position spray rails, guns, ventilators, hatches and rudder. All these small parts are given a coat of filler and sanded, then entire model gets several coats of colored dope. Light gray with black details will appear authentic.

If nose of boat rides high, add weight under bow. By constructing model half-again larger it will make a fine radio control boat. Should additional buoy-





"Monitor" (above) is scaled 1/4" to foot;  
"Merrimac," 1/8th; both waterline models.

ancy be needed in this case, add streamlined balsa blocks to raise deck back to waterline.

Our model "Monitor" is nothing more than a balsa plank 11" wide and half an inch thick, pointed at each end. And that nifty turret in the center is a coffee can!

You start by making hull from four 3" wide x  $\frac{1}{4}$ " thick sheets of balsa, cemented edge to edge. If you want to do a lot more work, you can make underwater portion of ship to scale—just follow dot-dash lines. The 44" craft—which is scaled down  $\frac{1}{4}$ " to foot from the original warship—is so simple to make and so much fun that you might as well follow the plans.

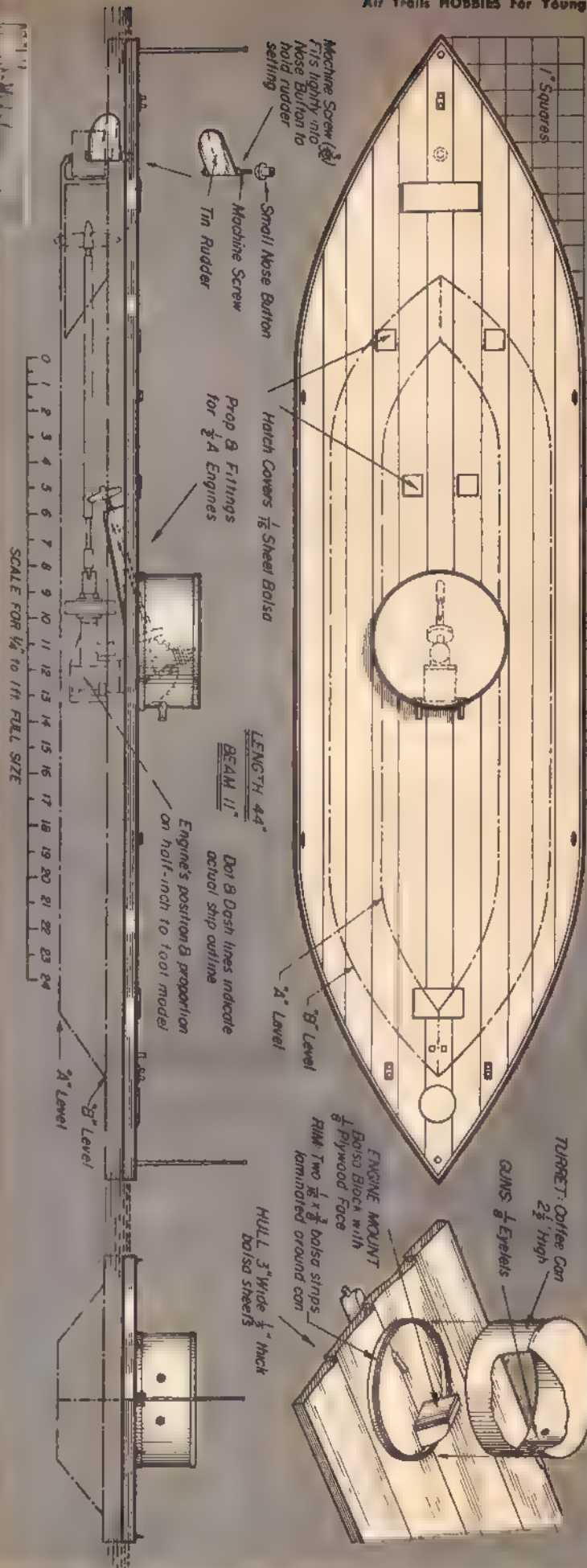
Engine goes in turret, and if you have a new one, you will have to water-cool it. Engine used in model shown was an old, worn air-cooled job that ran very nicely, even though all closed up in turret. In order to have turret scale-height with most makes of engines, you may have to mount the latter with the cylinder on its side rather than upright as shown.

Complete waterproofing of the wood is of paramount importance; since hull is rather thin, be sure to put each coat on *both* top and bottom surfaces at same time—otherwise she'll warp. Apply several coats of sealer, then several coats of dope.

As mentioned, turret is a coffee can, cut down a bit, and with a cardboard disc cemented into top to cover the pressed-in concentric rings. Two large eyelets serve as the guns, and also ventilate turret, which is just a friction fit

(Continued on page 61)

Full-size plans for both the "Merrimac" and "Monitor" are part of Group Plan No. 1055 from Hobby Helpers, 770 Hunt Point Ave., New York 50, N. Y. (50c).







Helicopter action at MMFF (from top): Joe Nusser, Woodside, L. L., Cub .049; Russell Marth, Hartford, Conn., with Clough R-8, Wasp; Wayne Sutherland, Baltimore, original, Atwood .049. Peter Karl won.

Al Schumacher, Westbury, L. L., cranks up his Wasp powered entry which took 3rd as wife Jean approves. Al's won many meets.



J. L. McLarty, Princeton, N. J. with first and original R/C, Cub .074 on rudder; 3A5 revz.

## EAST'S *MEET* WEST'S

PHOTOS by DICK EVERETT and JOHN SCHNEIDER

■ Biggest model plane competition in Eastern United States is N. Y. Mirror's 1-day Mirror Model Flying Fair. Largest West Coast competition (other than National AMA contest) is California State Championships. Here through the camera work of modelers Schneider and Everett we have a chance to compare Western and Eastern trends. MMFF was held on Armed Forces Day at Brooklyn's famous Floyd Bennett Field; California contest was a 2-day affair over same weekend. Attendance at both was high in both contestants and spectators, but East won hands down with 1,000 modelers and 150,000 onlookers!





# EAST'S Meets WEST'S



Trike entry by Cliff Propst, Summit, N. J. in PAA C/L endurance; Torp .15; Tornado 8/8. One gal did 342 laps in 34:12.

1955 National champ Willard Blanchard, Hampton, Va., Torp .15 PAA-Load. Woody won in Pan-Am's International MMFF class.



Ladies' Trophy winner (girls division) at MMFF was 10-year-old Karen Biddle, Neskeany, Pa.; with Fox .35 stunter.



Charles Pottell with Nordic glider by Arthur Watkins at Calif. meet. 500 sq. in.; 14½ oz.; reflex airfoil. Below: R. Ducharme, Woonsocket, R. L. had Spitfire 65 Stearman.



Real reason Colby Evatt builds big R/C jobs: he can get under wing, and away from Western sun. Webb Hill tries to coax him out; homesteader under left wing not identified.







California Champ Hal Cover launches rubber job on winning flight. He took 4 1sts, placed in 2 other events!



Bill Wisniewski fuels his 18 oz. Mono-Line proto speed plane. Has topped 112 mph in California contests.



Frank O'Brien of Yonkers, N. Y., starts Ben Sokerka's PAA Clipper Cargo entry as Ben's wife, Jeanne, lends hand.

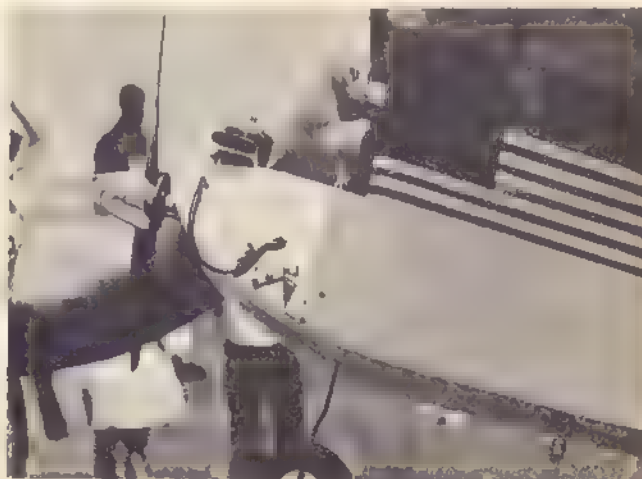
Brooklyn's Ed Smith flew this original stunt model at Mirror competition. Flying wing is powered by Fox .35.



Bob Denny, Los Altos, Calif. & Cub-powered sport free flight. 200 sq. in.; 11 oz. Everyone seemed to have camera.



Webb Hills' R/C creation (insert shows landing glide) has wing flaps; single control; was highlight of Calif. meet.



West Coaster John Tatone uses Autonips timer to squeeze off fuel. Dethermalizer "mousetrap" on bottom.



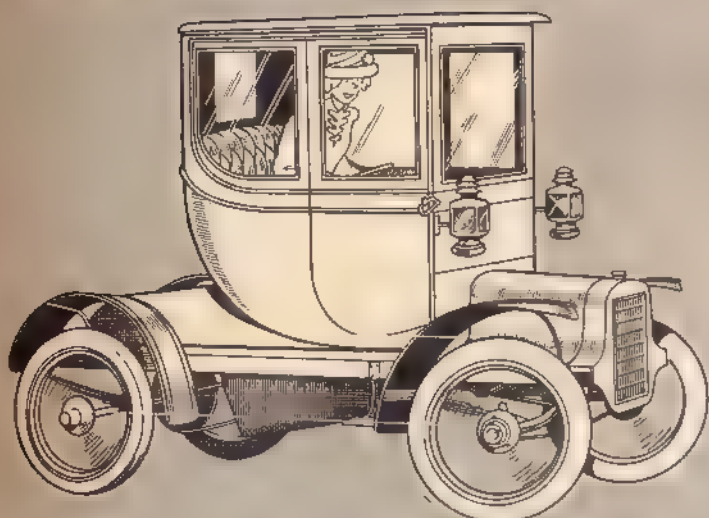
# AUTO Progress

By DOUGLAS ROLFE

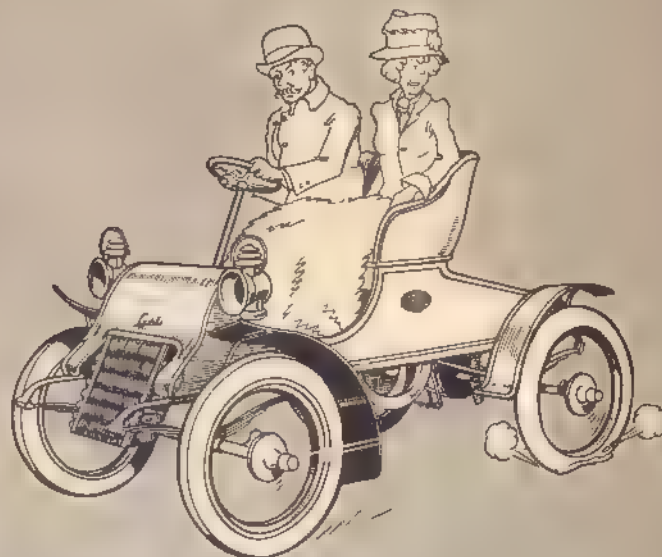
Air Trails HOBBIES For Young Men

## The Cadillac Story

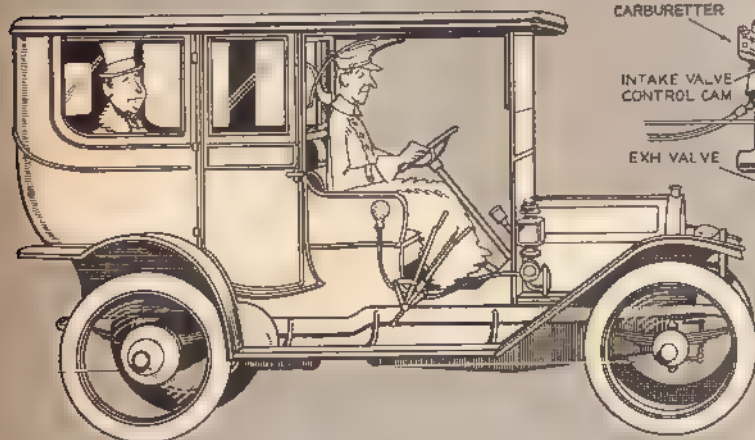
A mark of distinction for over half a century,  
its name has always been associated with quality



First Cadillac closed car mounted on Model B chassis, 1904. Differed from "A" car only in having a slightly more powerful engine, dummy hood. Engine still under driver's seat. Cost \$1350.

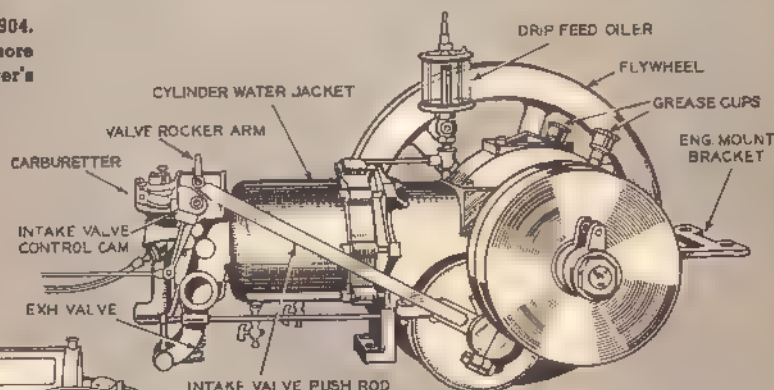


First production Cadillac (above) was powered by engine with 2-speed transmission (below) located under driver's seat. \$750.

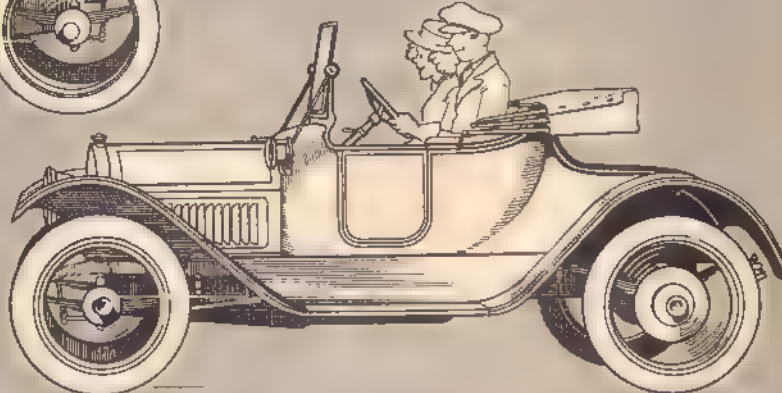


Luxurious 1910 Model 30 Limousine had a 4-cylinder 30 hp. engine under hood, standard transmission. Cost about \$3000. First Caddy Four came out in 1905, but had 25 hp. engine, planetary transmission, discontinued in 1908.

1913 Caddy Roadster was first car to feature electric lights and starter as standard equipment. Last Fours, produced in 1914, had electromagnet gearshift!



Precision-built Model A engine developed 8.5 hp. (later increased to 10 hp.) Engine speed was governed by intake valve cam.



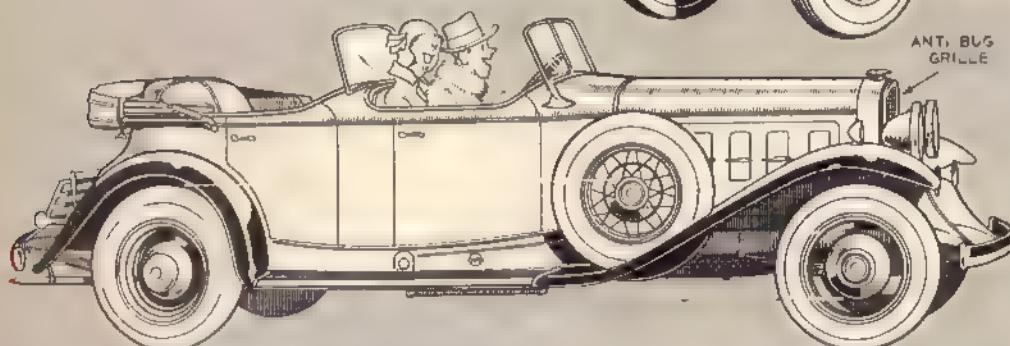
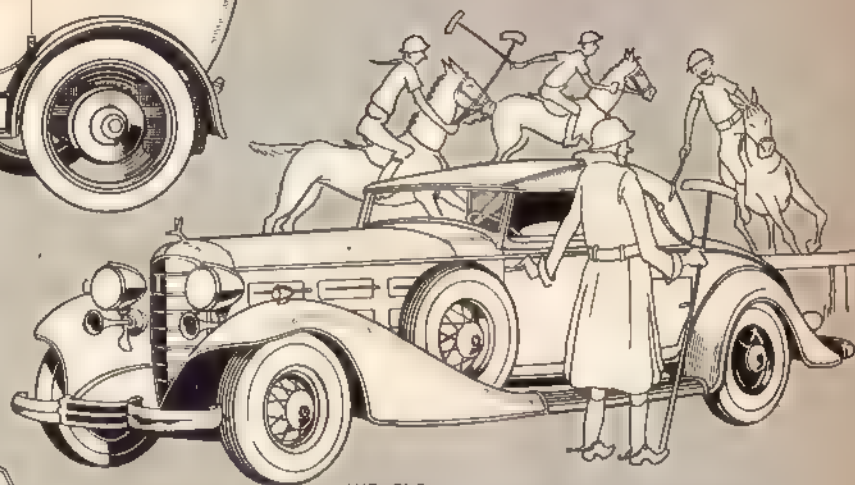
Henry M. Leland founded the present Cadillac company in 1902. A member of a quality machine-tool firm, he was one of the very earliest pioneers in the automobile field, entering it by constructing gasoline engines for other firms such as Oldsmobile. One of his earliest associates was the late Henry Ford, but Leland's preoccupation with quality cars did not interest Ford who soon left the firm to busy

himself with his own pet project—the mass-produced low-price car. Leland's early cars produced first by the Detroit Automobile Company and later by the Cadillac Automobile Company were a success from the start. Furthermore, from the very beginning, they were all built with more attention to Leland's high ideals than to price. Even the first Caddy with its tiny single cylinder engine was well engineered

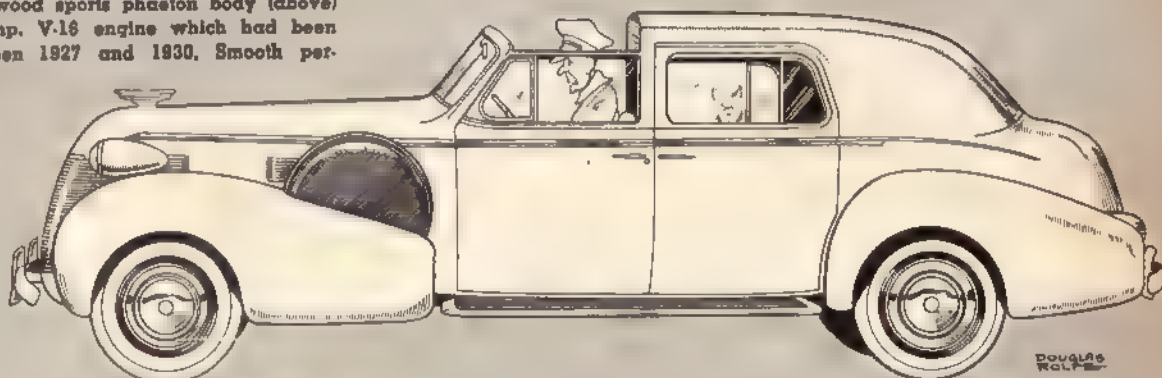




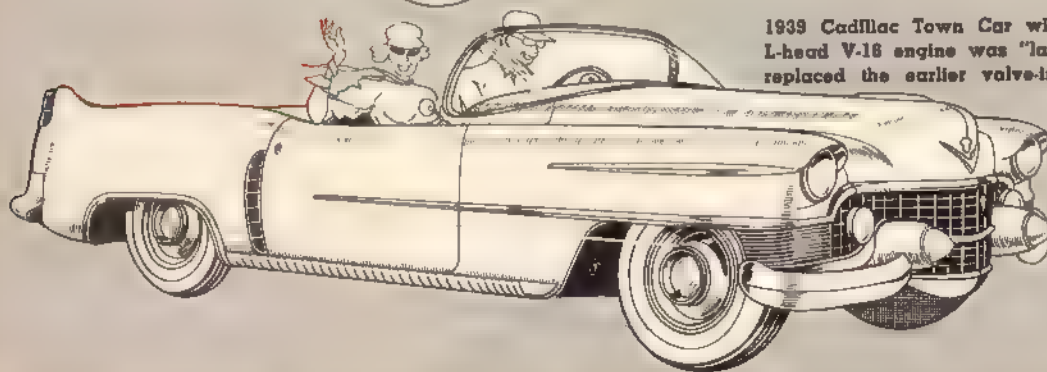
With the Model Type 51 (above), Cadillac introduced the first 90-degree V-8 engine which developed between 60 and 70 horsepower and remained virtually unchanged for 12 years following 1915. This is the model that really first made Cadillac famous.



Model 452-A with Fleetwood sports phaeton body (above) featured the new 185 hp. V-16 engine which had been undergoing tests between 1927 and 1930. Smooth performance, price \$6,600.



1939 Cadillac Town Car with Fleetwood body and new L-head V-16 engine was "last word." L-head type engine replaced the earlier valve-in-head V-16 engine in 1937.



Special experimental Le Mans Cadillac produced in 1953 had V-8 engine boosted up to 250 hp. Styling and modern refinements characterize current modern Cadillac line of cars.

and, in its day, one of the very best cars in the world. In 1910 the Cadillac Company was taken over by General Motors, but even that did not hinder its preoccupation with quality. Quite apart from this consistent stress on quality Cadillac has led the field in many automotive developments. First to introduce electric lights and starter as standard equipment, it also was first to introduce the smooth-running

90-degree V-8 engine, the V-12 engine and the almost turbine smooth operating V-16 engine. In body styling also Cadillac has not been backward, and even today when all car manufacturers seek to make even the lowest price cars look impressive, few would mistake a Caddy for any of the cars in the lower price brackets. Here is "class" on the surface as well as inside.



# Engineering Jobs in the Aviation Industry



**With Author Gene Kropf as your guide through a large aircraft-producing firm, this month you learn about the many jobs open in the manufacturing end, in field service, management. Qualifications — salaries!**

■ As our personally guided tour continues through a composite aircraft plant further evidence is presented of the many new types of engineering jobs which have opened up in the aviation industry.

**MANUFACTURING.** The design-to-delivery chart which appeared with the first installment in this series (pg. 39, August issue) shows us that the next part of our tour takes us to the actual point of manufacturing, the factory. The factory is the largest part of our plant. Large stockrooms, machine shops, paint departments, assembly lines, etc., cover so much area that it will be best to tour the factory by motorized cart. Today, one major manufacturer uses more than 12,000,000 square feet of space—more than the entire American airframe industry operated in 1940. The plant we are touring contains only about 7,000,000—even so we had better ride.

This plant employs more than 19,000 workers. These employees work at just about every type of job imaginable. Top supervisory positions go to those having special experience and licenses in a specific field such as Airframe and Powerplant, Master Electricians, Machinists, etc. Assistant supervisory positions may

be held while you are working to obtain these licenses if your experience and education allow. The remainder of the employees are people experienced in many trades—from air conditioning installing to wing jig builders. These jobs do not necessarily require a formal education beyond that provided by high school, vocational school, trade school or on-the-job training. Current wages here run better than \$2 per hour.

## IS THERE A PLACE FOR YOU IN THIS PICTURE?



With training and education, you can walk right into a well-paying job! All air-minded readers should follow this series of articles—as well as parents and guidance counselors.

As our mechanized cart rolls through the plant we see the Tool and Die Department where men are at work with plaster. They are "sculptors" shaping molds for dies and patterns, for parts which will eventually be stamped, punched, extruded, cast and forged. These molds are used to make dies in the foundry section of the department. As the foundrymen complete their work, the dies are sent to the machine shop for final finishing by highly experienced machinists and tool makers.

In another section of the machine shop, other machinists are working on tool build-up and repair necessary to keep the hundreds of machines throughout the plant humming continuously. Similarly, in other sections of the plant, jigs and frames are being built to help in assembling the many parts. Tooling is well underway to put high precision machines to work.

Our cart rolls into the heavy equipment section where we see presses and machines several stories high. One manufacturer calls this department the "Hall of Giants." These machines transform the raw materials into actual parts. One press will exert a force of 200 tons and shape a piece of sheet metal into a large



**AND STILL THEY GROW**—How transport aircraft have grown in 18 years is illustrated in this "family portrait" by Lockheed Aircraft Corporation showing six models, ranging from old to new, of principal Lockheed airliners when all were in reunion at their home airport at Burbank, Calif. Since days of 1934 Electra, 1936 Model 12 and 1939 Lodestar (small planes, left to right), capacities have increased from 8 passengers to about 50 to 100 in modern Constellation types (two front ships) and 180 in Navy's double-deck Constitution (rear). Speeds have advanced from 200 mph to 400 mph, with 450 mph predicted for Super Constellations (nearest camera) when equipped with turboprop engines. Total weights are up from 8,650 lbs. for the Model 12 to 184,000 lbs. for the Constitution. Constellation series has been stretched from 86,250 lbs. to 130,000 lbs. with further stretch to 150,000 lbs. foreseen. From smallest to largest, useful load has increased about 25 times, total engine power by 15 times. Since 1934, basic airline fares have held lower or about the same as airlines become more efficient and more economical.

side panel for a fuselage in a matter of seconds. This same part would have required many hours just a few years ago. In another part of this department we see a triple-action hydraulic press pounding away with a force of 8000 tons—forming metal parts for a modern transport plane.

As these many parts are made, they are sent to distribution points in the plant where they are combined to make sections or sub-assemblies such as wings, fuselage, tail and landing gear. This work ranges all the way from wing assembly on huge jigs 30 feet long to delicate wiring assemblies especially suited to a woman's deft fingers. Some parts are riveted together, others welded and still others bonded by cements nearly as strong as the parts themselves.

As we come to final assembly we see an idea borrowed from the automobile industry—the assembly line. As the fuselage moves down the line it takes on wings, tail, landing gear, powerplant, interior fixtures and all the hundreds of other parts necessary so that it can be literally flown off the line. Such an assembly line for a large aircraft may easily be over a mile long.

Yes, the aircraft factory is a remarkable place. Here, thousands of people make their living—in one city alone 185,000—at a weekly payroll of \$17,500. Here is where stocks are kept for hundreds upon hundreds of parts necessary for day-to-day production. A typical manufacturer will keep on hand 2,060 different aluminum items alone! One airplane we saw coming down the assembly line contains 125,000 individual parts—not counting bolts, rivets, etc. This same plane has 400 electric motors, generators and other electrical machines. Production of even a small modern jet fighter by a typical manufacturer will require over 12,000,000 pounds of aluminum, 1,500,000 pounds of stainless steel, 168,000 pounds of rivets and over 5,000 miles of electric wire.

#### FIELD SERVICE AND MAINTENANCE.

We'll leave our motor cart now and visit another department which is responsible for the plane after it has been test flown and accepted. This is the Field Service and Maintenance department—responsi-

ble for the serviceability of the aircraft through the investigation and analysis of service problems reported by the customer. This department is also responsible for the issuance of proper instructions regarding modifications, maintenance and repair.

As a member of this department your work will be varied—from trouble-shooting in the field to the preparation of maintenance manuals. Your job may take you all over the world—and at a moment's notice. A knowledge of one or several foreign languages can be extremely helpful in field-servicing.

General qualifications call for the engineer to be well-grounded in maintenance and repair techniques and familiar with the problems arising in the operation and maintenance of his company's aircraft. He must be able to prepare clear, concise written reports, including coordination on the preparation of the necessary art work required to illustrate handbooks and bulletins. A degree is necessary in Aeronautical Engineering or in Mechanical or Electrical Engineering. Initial assignments are usually in the nature of assisting more experienced engineers in the preparation of service bulletins. Salaries in this department range from \$4620 to \$8400 plus liberal expenses when traveling.

#### MANAGEMENT AND ADMINISTRATION.

Certainly, aviation as the nation's largest industry offers other opportunities. For those of you who are mechanically or technically inclined but who prefer to pursue an administrative or management career, aircraft manufacturers have found it necessary to create a new opportunity

—an administrative engineer.

In the past, aviation's need was for the purely mechanically or technically trained man. Employment was limited and there was little need for contact with the public. Aviation today has changed. There is a constant and growing demand for engineers who are also capable of performing other tasks. Aviation must deal with many industries that are not familiar with aircraft manufacturing problems. This new engineer must be capable of explaining the needs of his company in non-technical terms. He must have the ability to get along with people, express ideas clearly, cope with business problems and anticipate future problems. He draws upon his technical training to solve business problems from an engineering approach. For this reason his education should include an engineering background with a major in business administration. Starting salaries are comparable to those paid in Phase One of this article. Top salaries are unlimited. If you like both engineering and administrative work, this is the place for you.

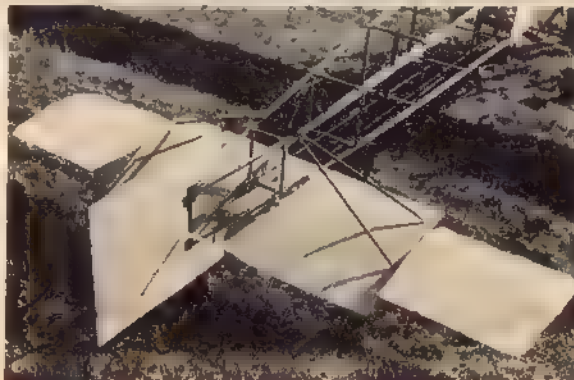
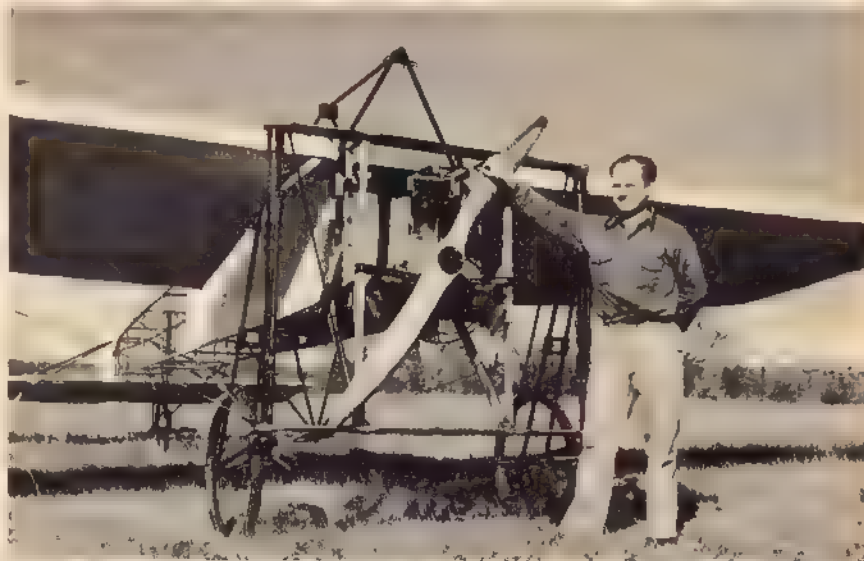
You needn't be an engineer to be a success in aircraft manufacturing, however. There are many other very important opportunities for you on the fields of medicine, law, public relations and advertising, industrial relations and labor management, accounting, purchasing, sales, plant protection—the list is endless. Generally speaking, positions in these fields will require a college degree if you plan to go very far.

You will find that it is possible to obtain summer jobs or part-time employ-

(Continued on page 61)

Compared with today's airplane structures, Bleriot of 45 years ago was crude. Engi-

neering then was "trial and error." Plane rebuilt by C. Palen, Wappinger Falls, N.Y.

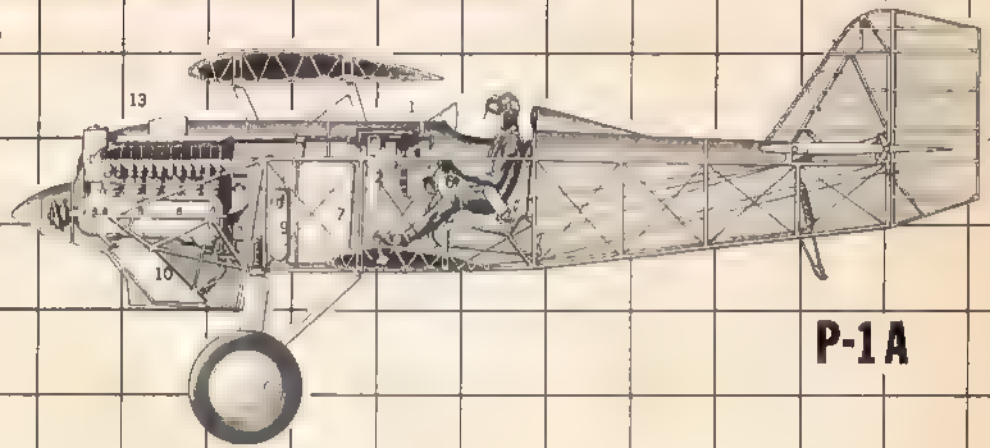
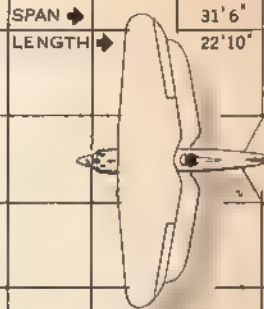




# AIR PROGRESS

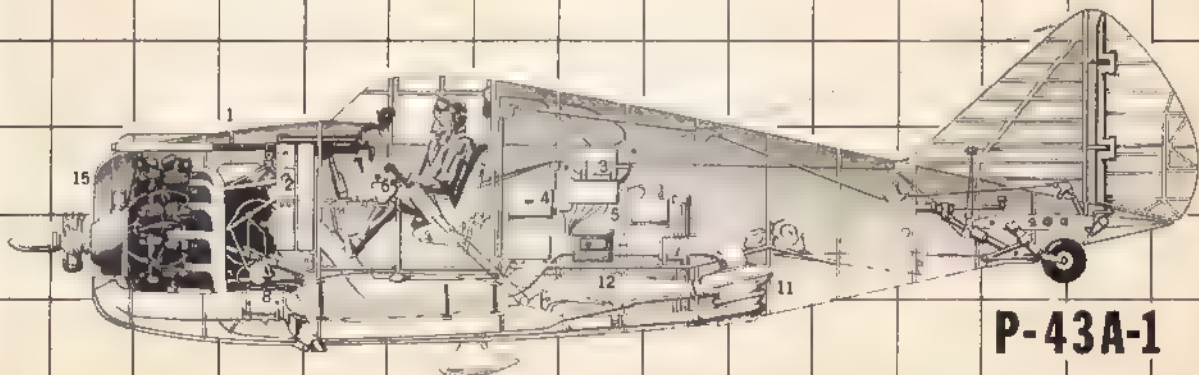
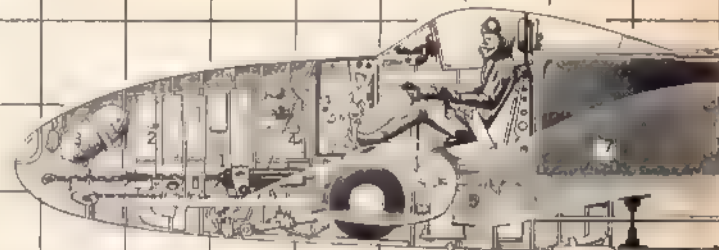
## U. S. Fighter Development

By JEFFERIES



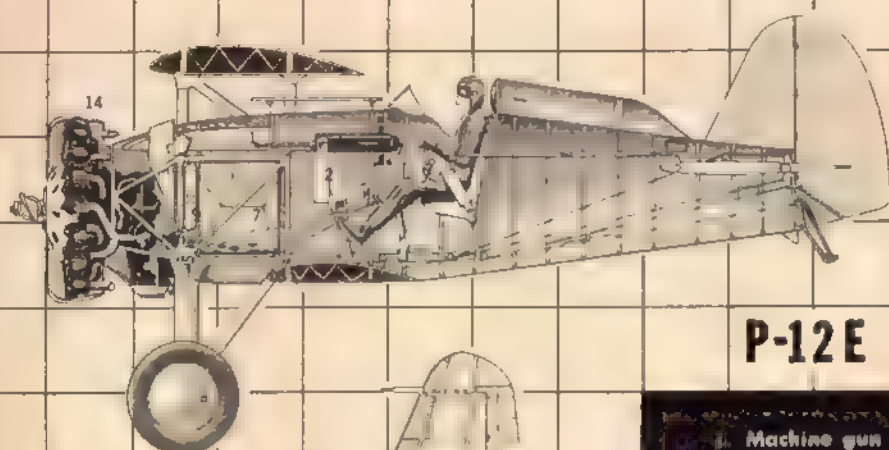
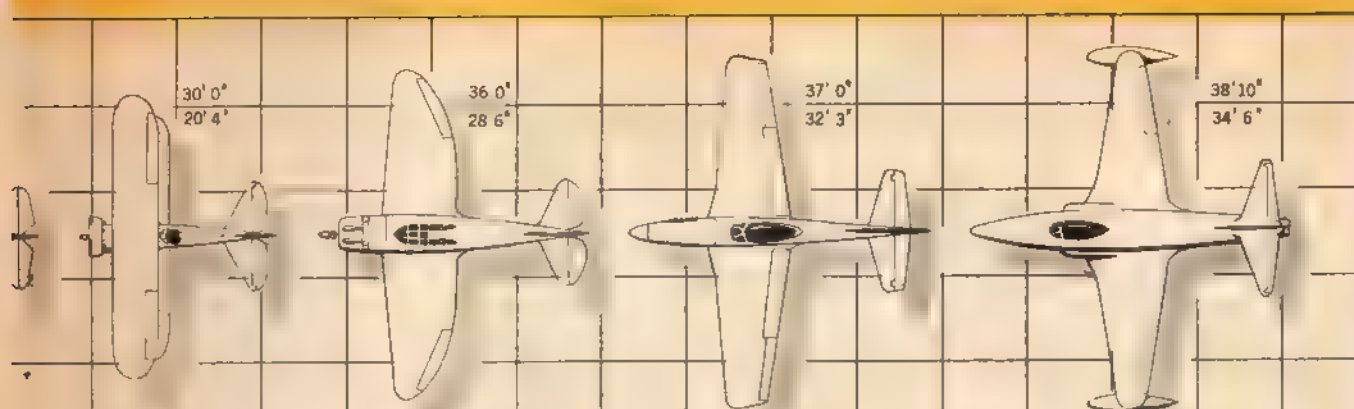
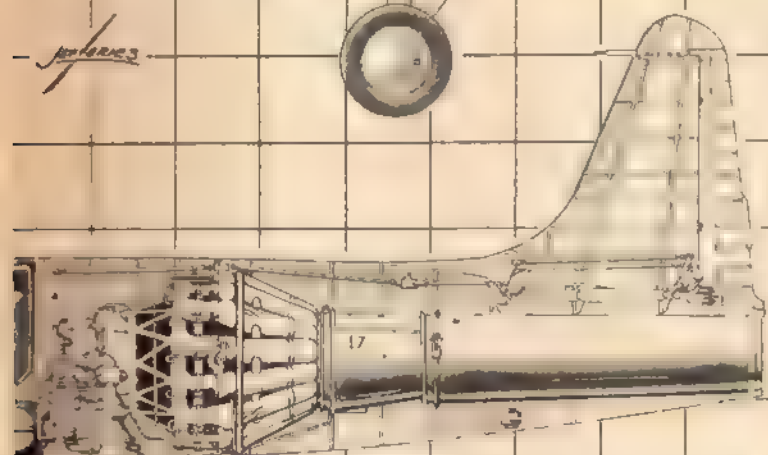
**P-1A**

P-1A	163
P-12E	190
P-43A-1	360
P-51D	470
F-80A	580
MAXIMUM SPEED - MPH	

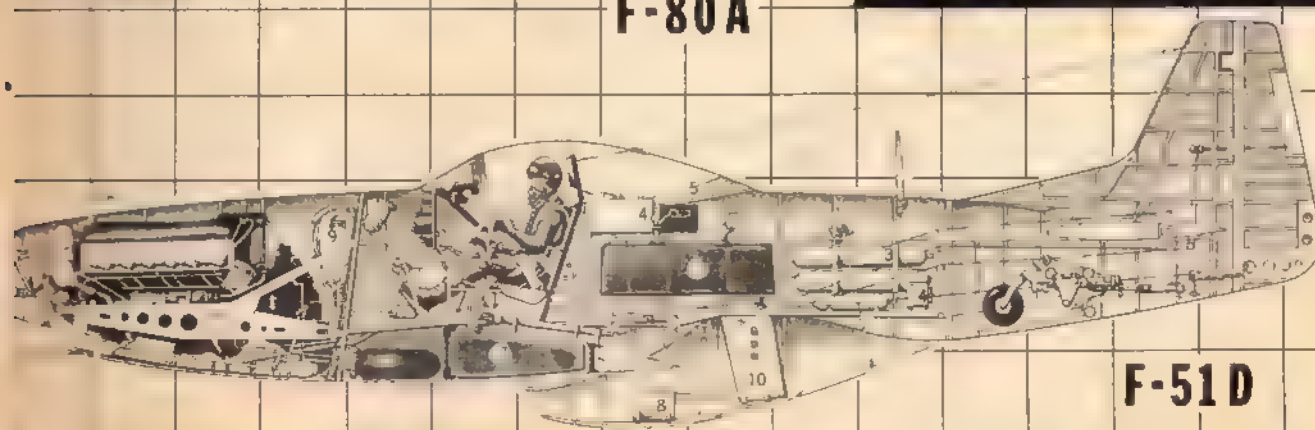


**P-43A-1**

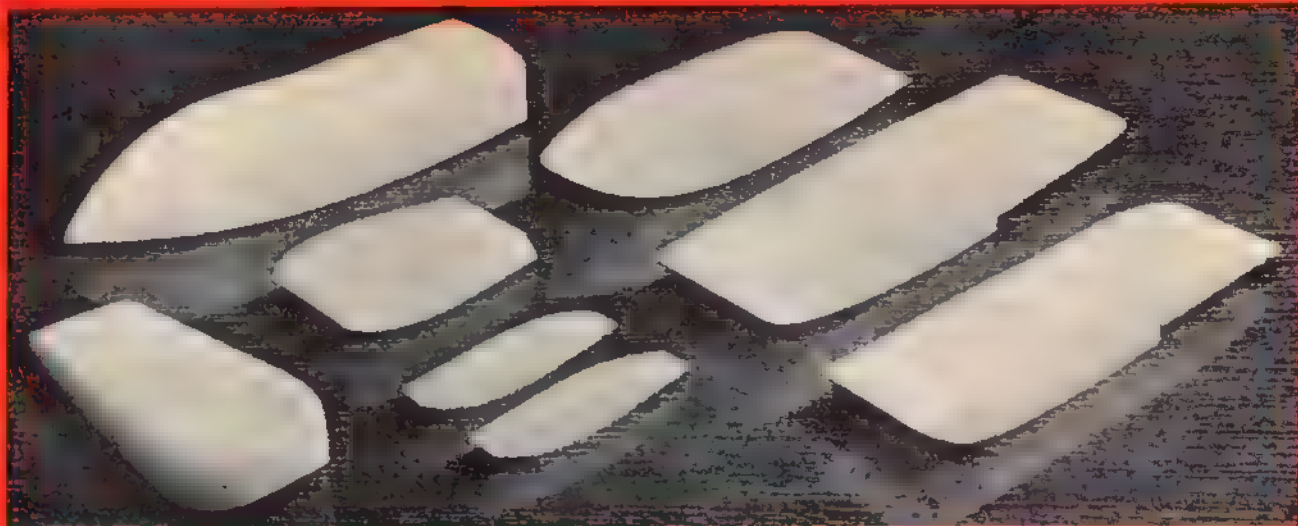


**P-12E****F-80A**

- |   |                             |
|---|-----------------------------|
| 1. Machine gun                                | 7. Fuel tank                |
| 2. Ammunition box                             | 8. Oil cooler               |
| 3. Oxygen tank                                | 9. Oil tank                 |
| 4. Radio equipment                            | 10. Engine coolant radiator |
| 5. Battery                                    | 11. Turbo supercharger      |
| 6. Engine controls                            | 12. Intercooler             |
| 13. Curtiss D-12 V-1150, 435 hp               |                             |
| 14. Pratt & Whitney "Wasp" R-1340-17, 500 hp  |                             |
| 15. Pratt & Whitney "Wasp" R-1830-57, 1200 hp |                             |
| 16. Packard "Merlin" V-1650-7, 1490 hp        |                             |
| 17. Allison J-33, 3200 lb. thrust             |                             |

**F-51D**





A Styrofoam float can be cut out to shape on a bandsaw in a matter of minutes. Various float shapes shown here are ready

for sanding, will later be covered, doped and painted. Material lends itself quite readily to all types of operations.

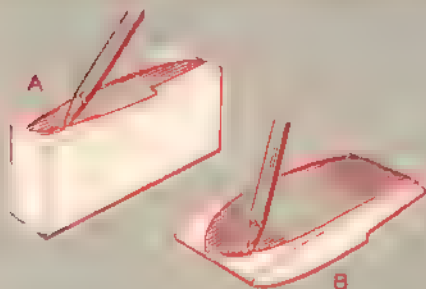
Small gas model float and stabilizer tip floats have been paper covered with paste and adhesive. Convex surfaces of "V" bot-

tom hull is covered in strips with edges lapped. This gives the usually rough surface of Styrofoam a smooth base for finishing.

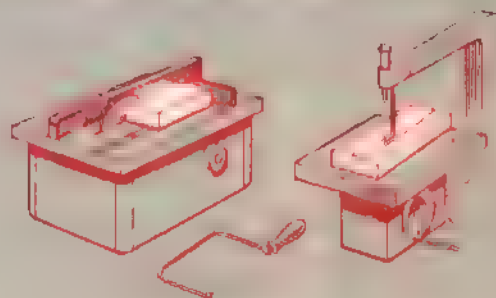


## HERE'S A MARVELOUS MATERIAL FOR MODEL PLANES AND BOATS EXPANDED POLYSTYRENE

By H. A. THOMAS



Styrofoam can be marked for sawing with ball-point pen, using paper patterns. Second cut (B) gives float shape which would involve complex structure in conventional built-up type.



Power tools: bench saw, bandsaw, jigsaw, etc., cut Styrofoam quickly, clearly, as do hand tools: coping saw, penknife, etc.



■ Most of us model builders tend to get in a rut when it comes to the selection of model building materials. Seldom do we really look around for new and different materials to fit specific needs in our model cars, planes or boats. All too often we build, by force of habit, with materials which may not be best suited to the particular application.

After testing and experimenting to some extent, we suggest a "new" material for model use: Dow Chemical Company's "Styrofoam"—and a similar material is Koppers' "Expendable Polystyrene." Here is an amazingly light, plastic material composed of billions of tiny bubbles, fused together into a tight, tough mass which has no grain and which may be cut, sawed, sanded, and shaped as desired. The material is particularly well suited for modelplane floats, for parts of boat hulls, for such stress-free parts of modelplanes as wingtips, turtledecks fairings, etc. It is far, far lighter than balsa wood and as to buoyancy, a cubic foot of it will support 55 pounds. It won't rot, deteriorate, or absorb water.

Styrofoam is widely used as flotation material in boats and for insulation in coolers and freezers. You have doubtless seen it often in decorations and in window displays. It can be purchased in small quantities at variety stores.

In industrial uses, Styrofoam is sometimes molded under heat; in granular form when placed in the mold, it rises when heated to fill the mold, forming a smooth impervious skin on its external surfaces. Here is a tip for some alert model manufacturer who may find it worthwhile to mold complete boat hulls or modelplane floats of this material.

It is interesting to work with Styrofoam, particularly with power tools. A bench saw, jigsaw or bandsaw will cut it smoothly and accurately. A sanding block will further smooth the surfaces. Shaping the surfaces to compound curves is an easy proposition too, and an electric handy tool fitted with a large-diameter abrasive wheel was found to be the ideal method for such shaping.

But model dopes and cements tend to dissolve the material, although there is quite likely some special adhesive in the plastics line which would not do so. Instead we used pastes, glues and mucilages in tests to paper-cover the surfaces which were later doped and painted.

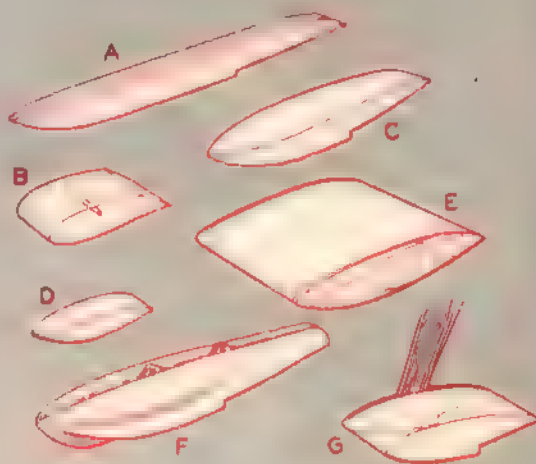
Incidentally, a Styrofoam float does not necessarily require paper covering or any "sealing" whatever. It is always buoyant, even if partly damaged or crushed. Our sealing was an effort to achieve a perfectly smooth surface, since the sawed or sanded surface of the Styrofoam exposes many of the myriad bubbles and leaves a somewhat textured surface. The fact that these miniature hemispheres tend to fill with water due to surface tension was our reason for sealing and smoothing the surface.

Conventional model floats of even simplest types require built-up frames and covering. It is far simpler to zip out the float with a couple of cuts on a bandsaw, seal the surfaces, add the necessary fittings, etc. The curves we can quickly saw in a Styrofoam float would require bent balsa sheets and involve time-taking, complicated construction.

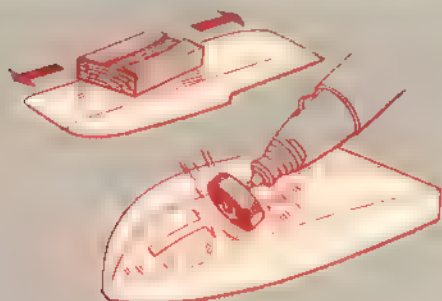
It is possible to combine balsa structural members with Styrofoam parts in applications where the plastic material is not of sufficient strength, or in special parts such as keels, which are subjected to unusual wear.



(A) Gummed tape, with edges lapped, can seal surfaces; later to be doped and painted. (B) Ordinary smooth paper, pasted or glued to small stabilizer tip floats, is sealed along edges with cement bead, then doped. (C) Aluminum tube fitting, with balsa wedges fore and aft, is later covered with tissue or silk.



Various float types easily made of Styrofoam: (A) slender twin float type is stiffened with balsa center keel. (B) Rubber model float with mounting tube installed. (C) Small free flight float (used with twin-tail floats). (D) Stabilizer tip floats for free flight gas model. (E) Broad float for large gas job with balsa sides for strength. (F) Realistic float type has balsa or plywood keel, "V" bottom, rounded upper surfaces; covered with paper in narrow strips. (G) Plywood gear "leg" is integral part of small float (used in pairs with single small rear float).



Sanding block with progressively finer grades of paper smooths surfaces. Electric rotary tool with abrasive wheels of various diameters quickly carves concave, convex surfaces.



Other Styrofoam uses: Wingtips of compound curvature; turtle deck for rubber or gas models; flying boat hull bottom combined with conventional fuselage structure.



# AUTO DESIGN COMPETITION



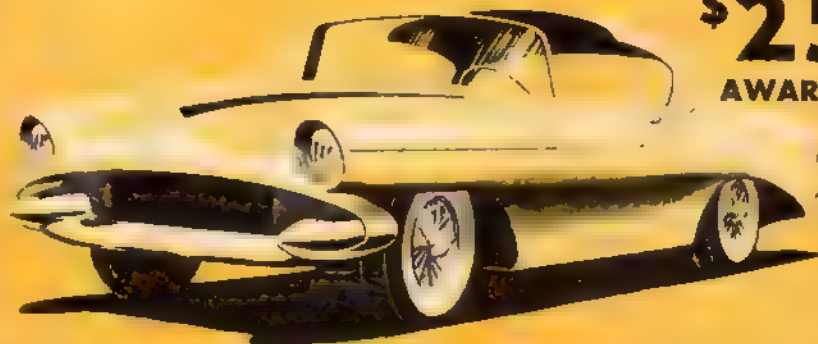
An original station wagon by James Cleland of Cuyahoga Falls, Ohio. Has semi-transparent plastic top. Squarish design permits full utilization of space. Headlights and parking lights are in hood. Square design is carried through entire automobile including fender cut-outs and undercut hooded rear end, which may not be too practical for city parking. Because of light weight of plastic top, only a minimum of upright posts is required, giving gain in increased all-around visibility compared to standard station wagons. Air inlet for cooling is located low under hood. Car is powered by a 200 hp V-8 engine with double-headers, dual exhausts.



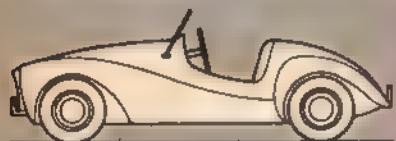
FIRST  
**\$50**  
AWARD



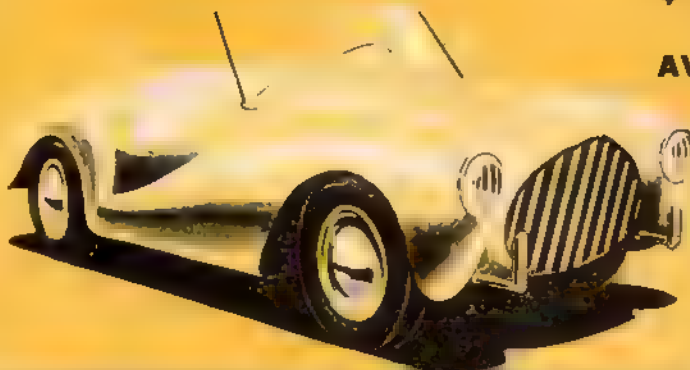
The Venus, a four-place sports cabriolet by Cary Taylor of San Jose, Calif., age 13. The body and top are of plastic construction. Style is true "Coupe de Ville" with passengers riding in the shade, though a clear plastic top can be fitted over driver's seat. Powered by a 210 hp V-8 engine and capable of 120 mph.



SECOND  
**\$25**  
AWARD



Small sportscar by Lamar Holdway of Richmond, Calif. Built on an 80-inch wheelbase chassis, this car is powered by a 750 c.c. engine (about the size of a Crosley). Frame is modified Crosley, body is of Fiberglas. Suitable for either street driving or competition in class "H", the little car is reminiscent somewhat of British Jowett Jupiter.



THIRD  
**\$10**  
AWARD

**It's easy to enter—  
All types are eligible:  
restyled passenger cars,  
original sport jobs, hot  
rods, or military types.**

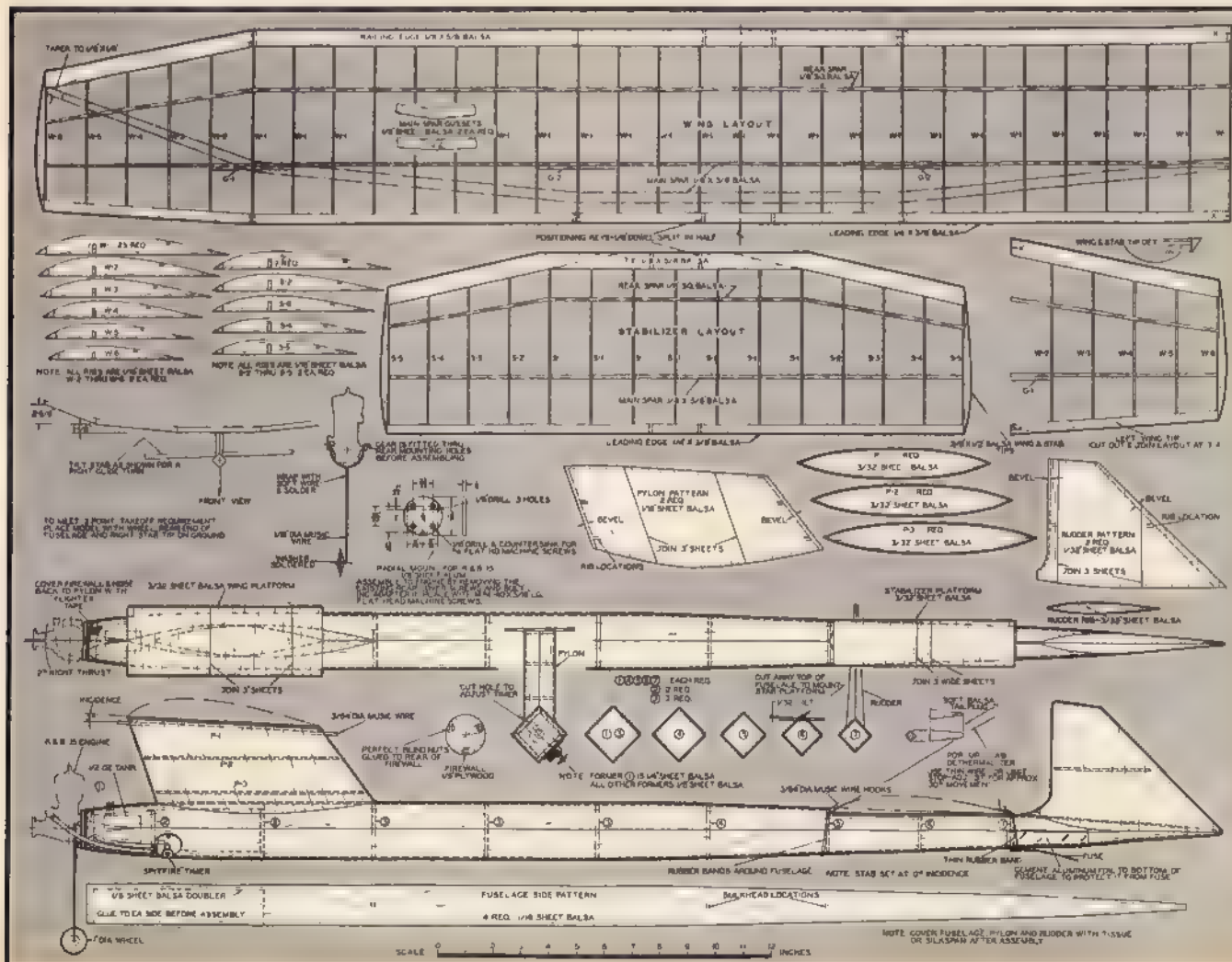
## AWARDS OF \$50.00—\$25.00—\$10.00 EVERY ISSUE

Cash awards will be made each issue for the three most significant auto designs submitted to this magazine. \$50 will go to the top design, \$25 to the second and \$10 to the third. You may submit sketches for an original design auto, for a restyled car, for sportscar, family sedans, record cars, hot rods, military vehicles or unusual trucks. Include side, front rear and top drawings, plus sketches of the proposed vehicle from three-quarter front and three-quarter rear positions. Sorry, we cannot enter into any correspondence about this contest. Send entries to Auto Design, c/o Air Trails HOBBIES For Young Men, 304 E. 45th St., New York 17, N. Y.



# Jersey Jester

■ While no serious student of the aeromodeling arts would ever call his research work "finished," or insist that his latest model would always remain his best, it is true that on rare occasions a top-notch designer will come up with a craft which he feels outshines by far any of his previous designs—successful as they may have been for him or for his followers. Frank Ehling, noted New Jersey competition flyer and designer, has had such splendid flight performances from this his latest .15-category free flight that it appeared only fair that we share the plans with other dethermalizer devotees. Herewith then FE's latest, his best and the one he'll have a hard time surpassing himself.



Full-size plans of Jersey Jester are a part of Group Plan #1055 from Hobby Helpers, 770 Hunts Point Avenue, New York 59, N. Y. (50c).



# IT'S COMPLETELY SELF-CONTAINED - IT'S CONDENSED - IT'S ELECTRONIC - IT'S PROPORTIONAL! FOR THE R/C EXPERT IT'S THE COMPACT-PULSER

By HOWARD G. McENTEE



■ Though we have long been a booster for the mechanical style of proportional pulser, it must be admitted that the circuit which appeared on page 16 of the January 1955 issue of "ATH" converted quite a few mechanical diehards—yours Truly among them. This circuit (originated by Dr. Walter Good and the most trouble-free electronic pulser we have encountered) looked like a good starting point for a compact and completely self-contained dual proportional pulser which we had been considering for some time. The idea was to put the whole works in a case of convenient hand size, so that the unit could be attached to any transmitter. A breadboard setup of the Good pulser showed that it was remarkably tolerant to changes of tubes, different relays, lower battery voltages and the like. Our final circuit (Fig. 1) differs very little from the original; we did lower the B voltage to 45 V. and substituted the popular 1AG4 tubes and new screen resistor values, to reduce overall size, and B current drain.

Standard electronic parts are used throughout. While Dr. Good suggested the Allen-Bradley type J variable resistors, we have found IRC type PQ units to work well. The latter are much cheaper, and have less "drag"—they turn easier. IRC PQ units are preferred rather than the more common type Q, since the PQ's have a round  $\frac{1}{4}$ " diameter shaft. The Allen-Bradley units cost about two and one-half times as much (Ohmite type CU is the same and probably easier to obtain but will probably last a lifetime, and have a very smooth and accurate resistance change. We have found the IRC units adequate, however.)

Since the variables turn something

over 200 degrees, and we want the control lever to move less than 90 degrees for full variation, the pots have to be geared up. The gears used in the pulser shown are 18 (on the pot shafts) and 84 tooth items, giving a ratio of about 4.6-1, and the control lever moves about 80 degrees from one extreme to the other. The smaller gears are drilled out to fit over the pot shafts, and are held with tiny taper pins (close-fitting rivets made of copper wire will do just as well). Gears E and J are cut down by removing about two-thirds of their teeth, as shown in the sketches.

The entire unit used to hold and operate the two pots R1 and R2 is made as one integral assembly. Basic part is A, an outer frame bent up from  $\frac{3}{32}$ " thick aluminum. As the drawing shows, an "ear" sticks out from one side of A, to hold pot R2. This ear could just as well be made separately and screwed or riveted to A. Most readers will probably make the bends in A by clamping the piece in a vise, bending as far as possible by hand, then whacking the bend down with a hammer. We suggest bending the  $\frac{3}{8}$ " mounting tabs first, then the two main bends, with the ear left till last. If your part A doesn't measure quite as it should don't worry too much—you can alter the dimensions of the "Cradle" assembly to fit.

The latter consists of two pieces of  $\frac{3}{4}$ " x  $\frac{3}{32}$ " aluminum, B and C, with gear J clamped between them. We call it a cradle, since the entire assembly including pot R1 rocks to and fro inside A. The pivot at one side is hole 5 and shaft G, while the other side turns on hole 6 and screw H. G is simply a piece of the shaft cut from one of the pots,

while H is made from a 6-32 screw. The latter was held in a drill chuck and a file held on it to turn off the threads and get down to solid metal. Hole 6 in B was then drilled to fit.

We suggest bending part B to shape, drilling hole 7 (for G), fitting gear J in place, then cutting C to fit. With C fastened in place, holes 8 may be drilled. Through the latter holes goes another piece of the pot shaft, which carries gear E.

The control handle "I" is a  $\frac{3}{16}$ " rod, with the lower end cut down to about  $\frac{1}{16}$ " dia. and threaded 8-32. The cut-down end is a snug fit in hole 9, which is drilled through D and E together. A nut pulls "I" up tight against the hub of E, and the single centering spring goes from the lower end of "I" through a hole in A. This hole, 3, should be just large enough to pass the end of the spring. Different operators have different ideas of how strong a centering spring they like (some prefer no centering at all); at any rate, the hole 3 should be exactly under the end of "I", when the latter is straight up. It is smart to wait until all other parts are made and trial-assembled, before drilling hole 3.

Both R1 and R2 are adjustable, to allow correct meshing of the gears. The slot for R1 is cut on the center line of the  $\frac{3}{4}$ " wide material, as are holes 6, 7 and 8. Holes 6 and 7 are drilled  $\frac{1}{2}$ " from the outer face of B, and note that hole 9 in the gear and its shaft also line up crosswise with 6 and 7.

The entire cradle assembly will probably be smaller than the inner distance between the legs of A, and should be positioned by washers to take up the sideways slack. D is held in its proper



FIG. 2 TOP VIEW OF TUBE CHASSIS (1/2 LINEN BAKELITE)

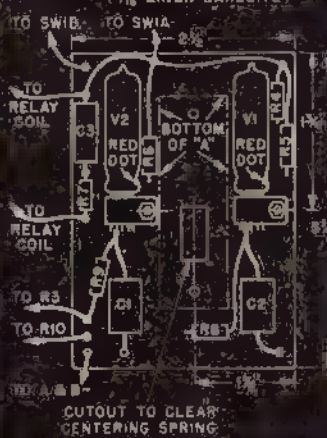
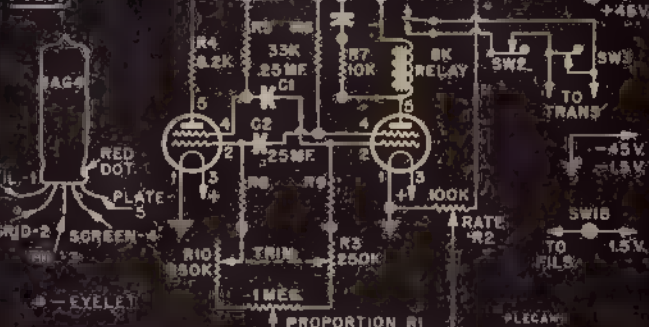


FIG. 1







location in the cradle by means of tubing spacers, or collars fitted with setscrews. With all parts together and adjusted to operate smoothly, the centering spring may be attached; hook it in the lower end of "I", run it through hole 3, and check tension. When it is to your liking, slide a strip of thin brass between coils of the spring on the underside of A, cut the rest of the spring off and solder the spring and strip together.

We fitted all parts into a 3 x 4 x 5 aluminum box, and included a couple of frills in SW2, SW3 and the Trim pot—R3 and R10. Since this pulser is always sending out pulses—even though they are very short at each end of the proportional range—it was felt we might want to cut the signal completely or give full signal at times. SW2 and SW3 take care of this, and the latter may also be used as a "key" for working escapement planes, or for ground checks. The Trim control allows for a small variation in pulse proportion; it is usually set at the center of its rotation, but if the plane is seen to be turning slightly with the control stick in neutral, the Trim pot

can be turned to compensate. Note the way connections are made to R10 and R3. These two pots are mounted and controlled by a single knob, and are wired so that as one increases resistance, the other decreases.

We used an old Sigma 4F relay, and this had to be mounted on insulation to isolate its frame from the pulser case. It is connected so that when the pulser is not turned on, the contacts to the transmitter are open. Our relay is an 8,000-ohmer, but other resistances will work OK. However, resistor R4 should be about the same as the relay resistance.

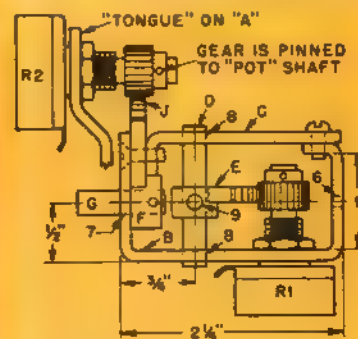
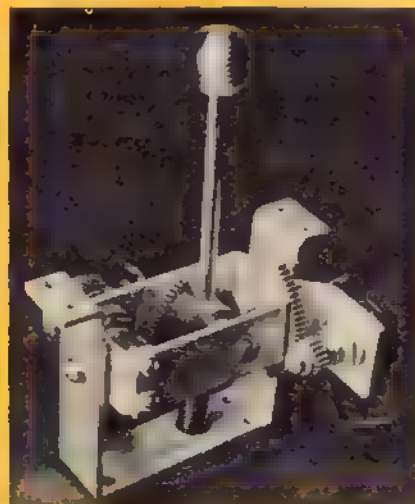
With the relay, batteries and switches tucked in, the only open spot left for the tubes and small electronic parts was near the bottom of the case. They are all held on a bakelite chassis as seen in Fig. 2. Exact mounting dimensions are not given, but the approximate location of all parts is indicated, along with a few of the leads. Eleven tiny copper eyelets are spotted around the edge of the chassis, to hold some of the heavy parts, and to make connections to parts attached to the case. These eyelets are

indicated on Fig. 1 too. Sockets are of the type that mount entirely on one side of the chassis, and are held with a single 2-56 screw apiece.

When all is ready for a trial, just turn on the switch and she ought to start ticking. The relay adjustment is not at all fussy; set the armature so it is fairly close to the core, when held operated by hand. Then set the other contact to give about .006-.007" gap. The most critical point for relay operation is with the pulser at highest speed, and the proportion pot R1 all the way to one side or the other, so check relay under these conditions, adjusting the spring tension so that it works reliably. Since relay current goes from about zero to 3 ma. or so at each pulse, the setting is not difficult. We like to have the relay click good and loud, since there is no pilot lamp to tell when you have left the unit running—but the clicking of the relay can be heard for some distance.

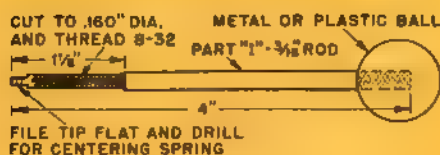
If you hook this pulser to your transmitter and find that the control handle goes the opposite way from the rudder,

(Continued on page 70)

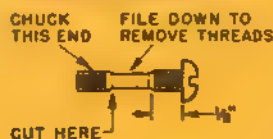


"CRADLE" ASSEMBLY, SEEN FROM TOP

- 1, 2, AND 4—DRILL NO. 35 AND TAP 6-32
- 3—TO CLEAR CENTERING SPRING
- 5, 7, AND 8— $\frac{1}{8}$ " DIAMETER
- 9—NO. 20 DRILL
- 6—DRILL TO FIT TIP OF "H"

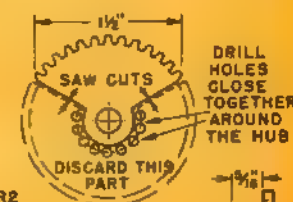


PART "M"—MAKE FROM 6-32 ROUND HEAD SCREW

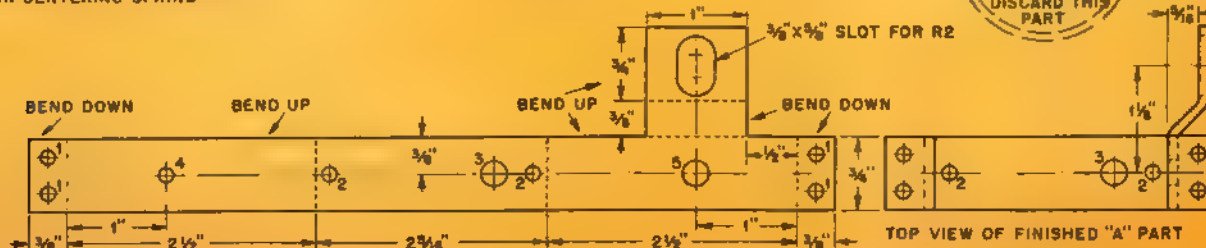


PART "I"— $\frac{1}{8}$ " ROD

CUTTING "E" AND "J" TO SIZE

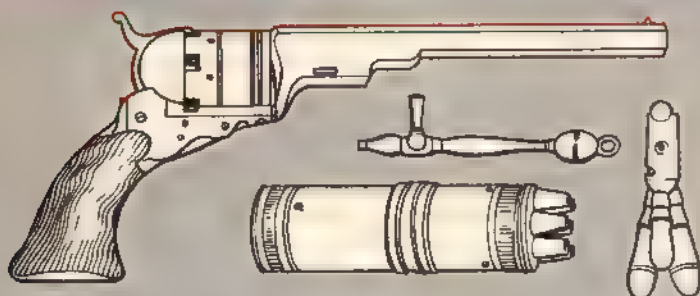


PART "A"— $\frac{1}{8}$ " ROD

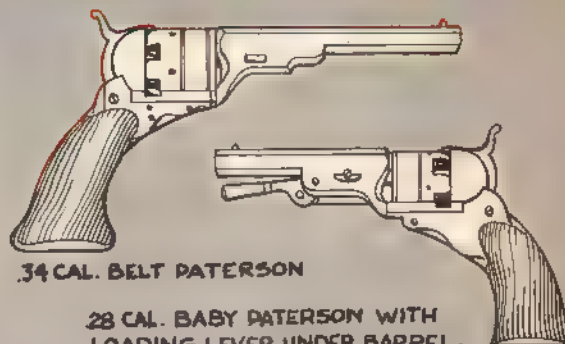




# THE COLT STORY

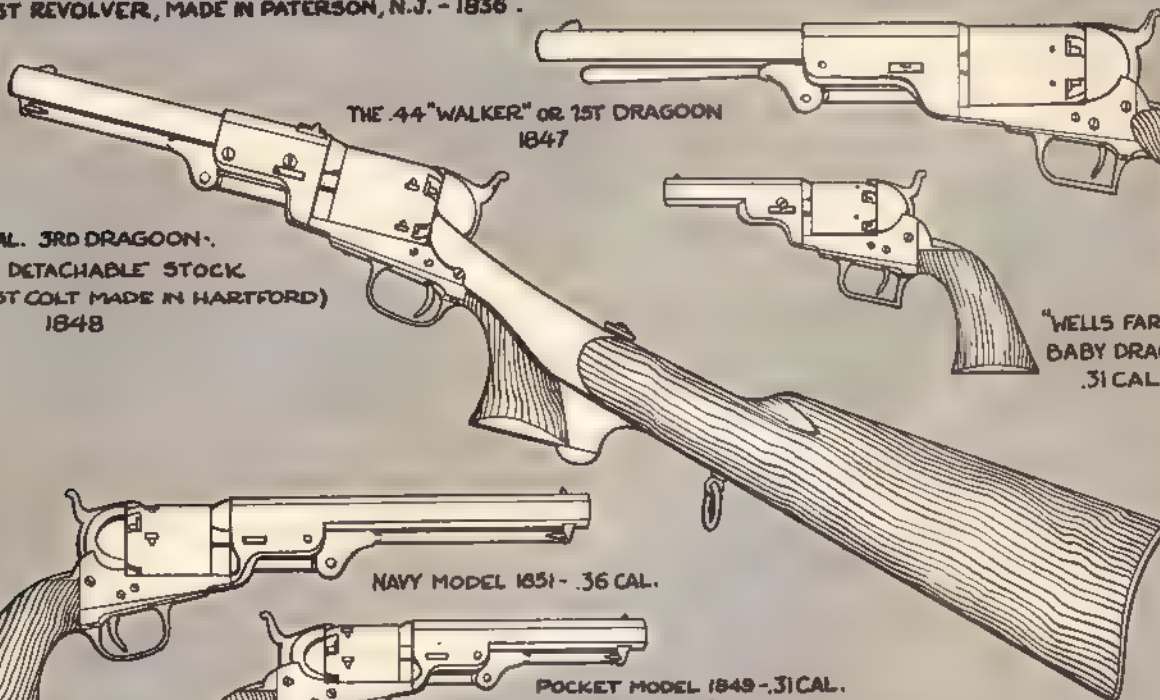


**.34 CAL. TEXAS PATERSON WITH POWDER FLASK, BULLET MOULD AND LOADING TOOL. THIS WAS COLT'S FIRST REVOLVER, MADE IN PATERSON, N.J. - 1836.**



**.34 CAL. BELT PATERSON**

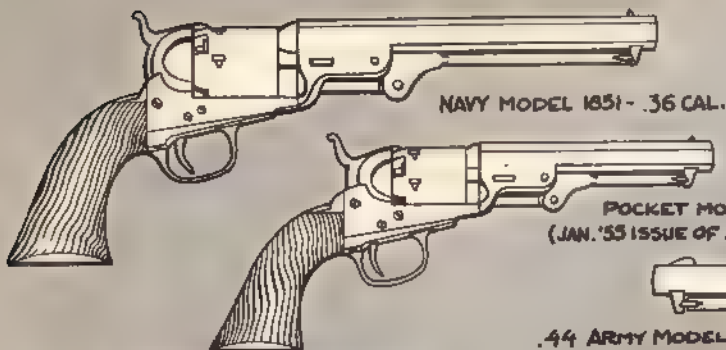
**28 CAL. BABY PATERSON WITH LOADING LEVER UNDER BARREL.**



**THE .44 "WALKER" OR 1ST DRAGOON 1847**

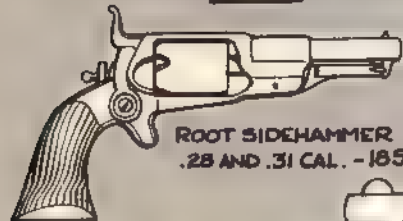
**.44 CAL. 3RD DRAGOON - WITH DETACHABLE STOCK (FIRST COLT MADE IN HARTFORD) 1848**

**"WELLS FARGO" OR BABY DRAGOON - 1848 .31 CAL.**

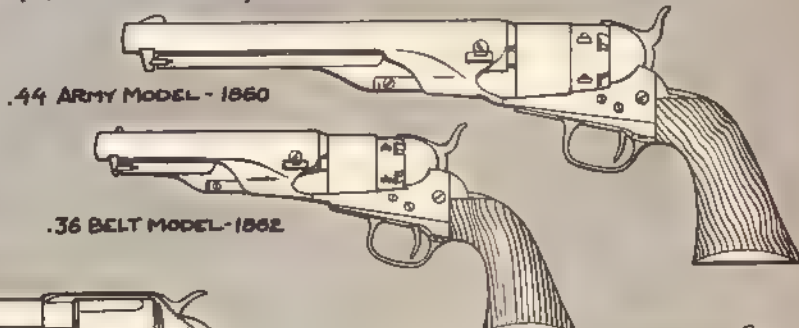


**NAVY MODEL 1851 - .36 CAL.**

**POCKET MODEL 1849 - .31 CAL. (JAN. '55 ISSUE OF A.T.H.)**



**ROOT SIDEHAMMER MODEL .28 AND .31 CAL. - 1855**

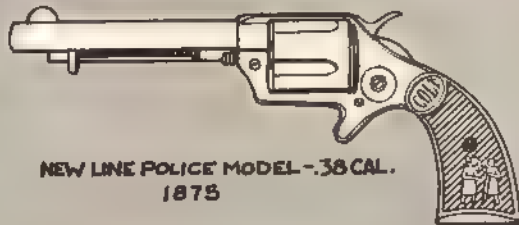


**.44 ARMY MODEL - 1860**

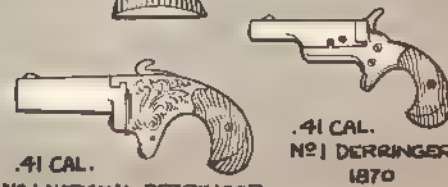
**.36 BELT MODEL - 1862**



**.41 CAL. HOUSE MODEL 1870**



**NEW LINE POLICE MODEL - .38 CAL. 1875**



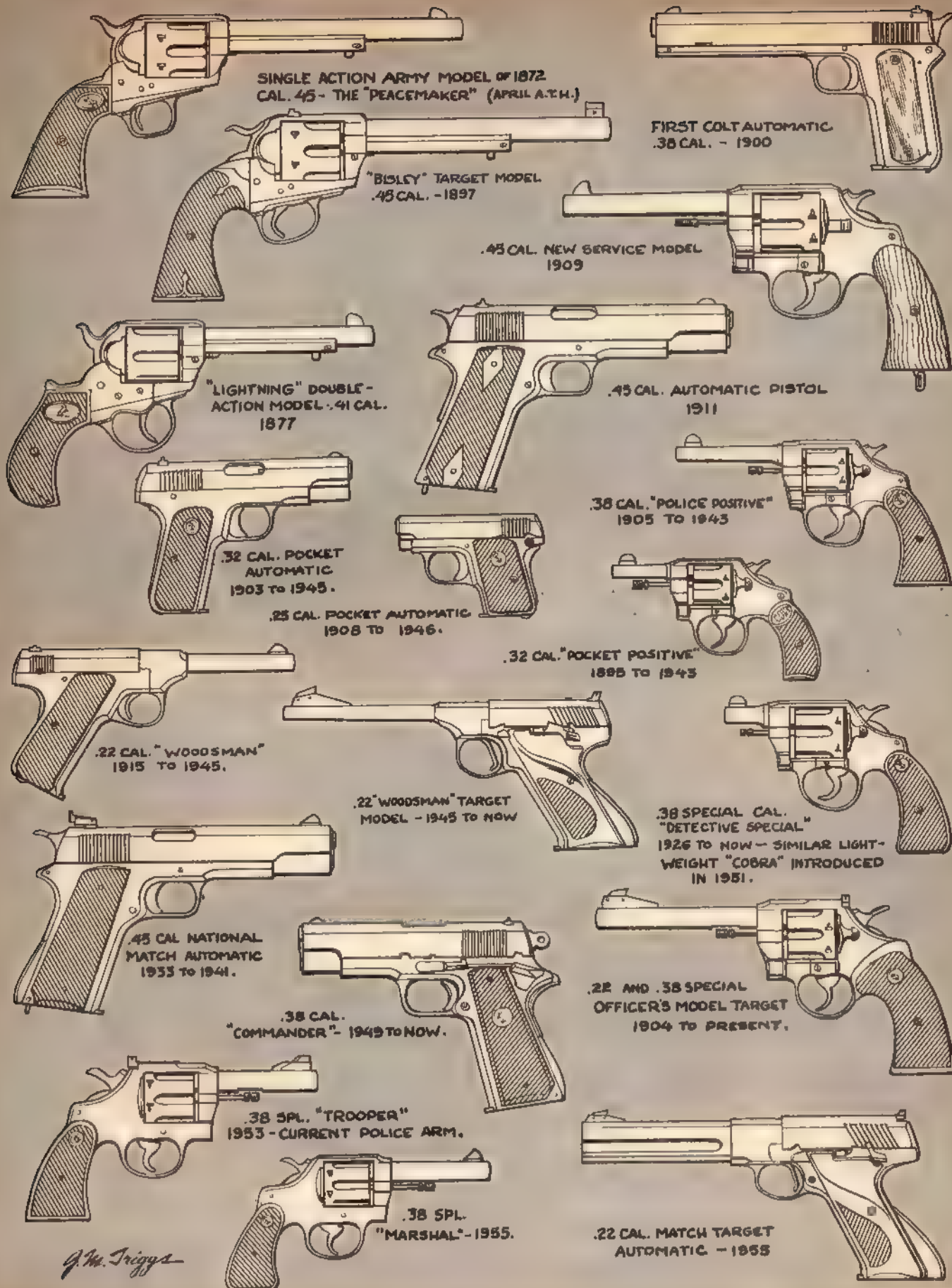
**.41 CAL. NO. 1 DERRINGER 1870**

**.41 CAL. NO. 1 NATIONAL DERRINGER**

Samuel Colt's first experimental model revolvers were made in the shop of Anson Chase in Hartford, Conn., in 1831 and 1832. These were the foundation of the Colt fame and fortune. The first Colt patent was granted in England in 1835 when Sam was only 21. A year later U. S. patents were granted and in March, 1836 the "Patent Arms Manufacturing Company"

was established in Paterson, New Jersey. Here were made the famous "Texas" Patersons and belt and pocket Paterson models. In 1843 the Paterson factory went bankrupt, but Sam Colt soon had Government orders and started manufacturing again in the Connecticut factory of Eli Whitney. The "Walker" Dragoon of Texas fame was made here. In 1847 Sam





Colt set up his own factory in Hartford. The later Dragoon models were turned out here as have been all Colts since that time. Sam Colt died in 1862 and in 1864 his factory at South Meadow in Hartford burned to the ground. A new red brick armory was built on the spot and stands today, a part of the large Colt Manufacturing Company, overlooking the Con-

necticut River. Although the Colt Company has made various long arms, shotguns and machine-guns, we here seek to show only the major handguns of interest to collectors. It might be pointed out that, although the exact number of Colt arms produced since 1836 is not available, from 1847 to 1860, 50,000 revolvers were made for the War Department alone.



# HOBBY WORLD MODEL

■ With the passing of Gerald H. Smith, not only did publishing in general and Street & Smith Publications in particular lose an outstanding leader, but the hobby-model world suffered the loss of a great friend.

While the public knew him as the president of Street & Smith Publications, Inc., a director of the Magazine Publishers Association, and a vice-president of the S-M News Company, a fortunate few knew Mr. Smith as an ardent model builder and a guiding light for Street & Smith's model-hobby publishing efforts.

As reticent about his modeling efforts as about his public honors, Mr. Smith, the grandson of one of the founders of Street & Smith, carried on the tradition of his father and grandfather as head of the concern founded in 1855 which is the oldest family-owned publishing house in the country.

In many ways he encouraged staff

members in the execution of their duties. And perhaps you may have noticed in the past few years how many model designs which have appeared in this publication found their way into kits marketed by various concerns. This is in no small way attributable to a policy endorsed by Mr. Smith which permitted model designers to realize additional revenues from their contributions. His appreciation of the effort involved on the part of the designer in the preparation of model craft projects was heightened by the fact that he himself was a model builder.

But more than a model builder, the late Street & Smith President served as Light Plane Editor of "Air Trails" back in the late '30's. He was an active and enthusiastic pilot; later he added sports cars to his list of interests. How he managed to maintain an unflagging interest in aviation, modeling and cars is hard to

conceive since he was so deeply immersed in the multitudinous operations of a vast publishing concern, too. But as his managerial responsibilities increased, he never lost that interest nor was he ever too busy to stop and chat about his rare modeling moments.

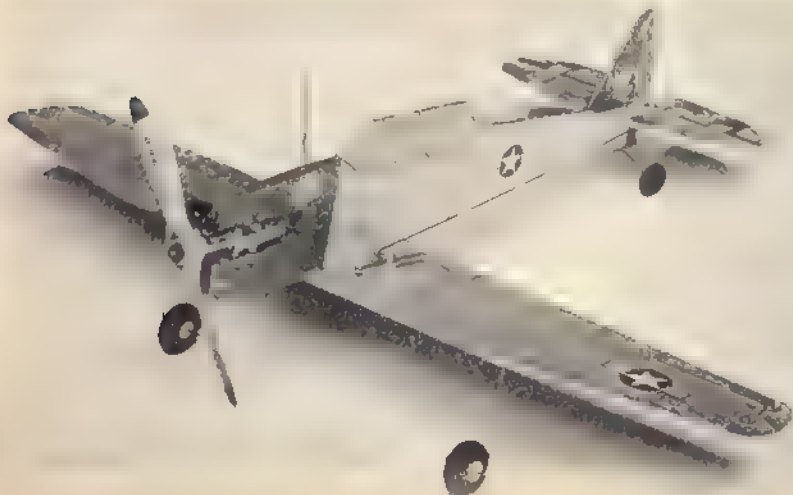
It is hard for the magazine's staff and many of its regular contributors to accept the fact that Gerald Smith has passed from the daily scene. But all are determined to follow along in the path he has traced. Certain solace comes with the knowledge that he accomplished many great things and these will live on keeping our memory of him always close. He was a great leader, a fine friend and an inspiration to us all.

**Young Men.** As we did back in early 1954 when "Air Trails" became "Air Trails Hobbies For Young Men," we dropped into the editorial offices to get a report on the whys-and-wherefores of the title change which comes next month as ATH becomes "Young Men."

Our first question, naturally, concerned the contents of "Young Men" — what changes could we expect? Very few, we learned, except that some good things will get better and that some very special surprises are planned for the reader. First—additional space will be given to radio control modeling, especially to the "Everything Under Control?" section; then "Model Boating" will be enlarged to accommodate the ever-increasing interest there. What about model planes? Will that subject come in for its current full treatment?

Absolutely—was the answer. As a matter of fact this "Hobby Model World"

Working from Navy-supplied plans, Albert Christen, Clifton, N. J., turned out this profile "SNJ." Spans 30"; McCoy diesel. All balsa; plywood nose doublers.



## HOBBIES-IN-ACTION

Bob Graham, Jersey City, N. J., grabs the big award this month with 1/500 sec. shot of Charles Baxmann's Class D boat taking off during 62 mph run at Detroit (Hornet .60; balsa-plywood construction). Rolleiflex Standard; f/4; Super XX film; dev. in Microdol; printed on Kodabromide; Dektol dev.

### \$25 Award Winner

section will be enlarged giving additional space for model plane reporting. And how is this all to be accomplished? With a couple of those St. Nick-like winks the editors told us to wait and see, but we did manage to pick up enough info to make an informed guess that the construction instructions on advanced model projects would be briefed in keeping with the abilities of the modelers interested in that sort of thing.

Asking specifically about model projects "in the works" we were told that a spectacular F-86-like control line stunt model is scheduled for the next issue, also a hydro-foil scale boat and a sports car on a glow-plug powered chassis. All sounds good. We wanted to say that the stunt job, named the "Wicked Witch,"

Tom Rutler opines that this is first B-36 model flown in U.S.; built by Dick Ryder and James Perry of Fairchild AFB's "Air Devils" club for Armed Forces open house.

was a semi-scale creation, but someone showed us a communication from a USAF Captain which gave us pause for thought. Maybe it'll "pause" you, too ... we'll get to that in a moment.

But "Young Men," we wanted to know ... did it mean the lessening of model-hobby features? Not at all, we were informed. While every hobbyist-modeler may not be a young man in years (although we have yet to find one old in spirit despite his age!), the aim of the magazine is to encourage every young man in America to be a modeler. Idea is that with a title like "Young

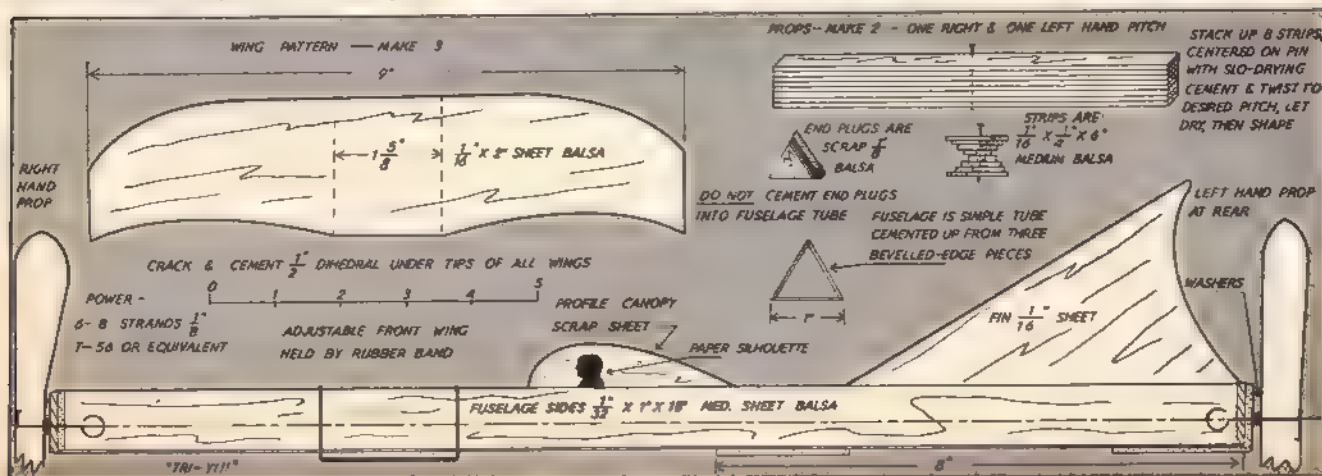
Men" and an editorial policy such as you find here now, more young fellows will be encouraged to go into constructive "construction" hobbies.

"All we want," said one staffer, "is to make sure that every technically-minded teen-ager knows about all the fun and good experience for a later engineering career than you can obtain from modeling!" Well, certainly we can't quarrel with that aim. And if we can all work together, editors, contributors and readers, to interest more young fellows in our model hobbies, then everybody should benefit

Men" and an editorial policy such as you find here now, more young fellows will be encouraged to go into constructive "construction" hobbies.



Tell the beginners in your club to try "TRI-YII!" This weird-looking little rubber-powered plane has plenty to recommend it besides novelty. The unusual three-in-a-row wing arrangement lends exceptional fore-and-aft stability and the counter-rotational props allow powering it up as much as the fuselage and your nerves can stand. It will flash along at terrific "scale" speeds in level flight, or climb nearly vertical out of sight if you use a winder on the motor. Incidentally, the prop construction method is a dilly for strength, accurate pitch and easy going-together. We bet you'll soon be using props of this laminated-twist construction in preference to carved blocks/blanks on rubber jobs.



Full-size plans for "Tri-Yii!" are part of Group Plan No. 1055 from Hobby Helpers, 770 Hunts Point Ave., New York 59, N. Y. 50c.



# HOBBY MODEL WORLD



Models are important to air research.

In that respect, too, we learned, some very special plans are being developed to encourage the older, experienced modelers to devote a little of their time and effort to leadership work. So stick around, and don't forget next month to ask for "Young Men" at your newsstand or hobby shop.

You'll recognize the magazine easily—it has a terrific Stevenson painting on the cover of Bill and Dot's Hobby Shop!

**Models For Research.** Note the photos on this page which give dramatic evidence of how models play an important part in the world of aeronautical research. Top shot shows how the "runway barrier" was put into operation in Korea. Barrier is attached to heavy chains which plane drags along on each side of the runway. Center pictures show how 1/10th scale pint-size jets are shot forward from a catapult to test various versions of barrier, by American Engineering Co., Wilmington, Del. Bottom pix shows a barrier in place at Lindbergh Field, San Diego. Cable is attached to 30 tons of anchor chain.

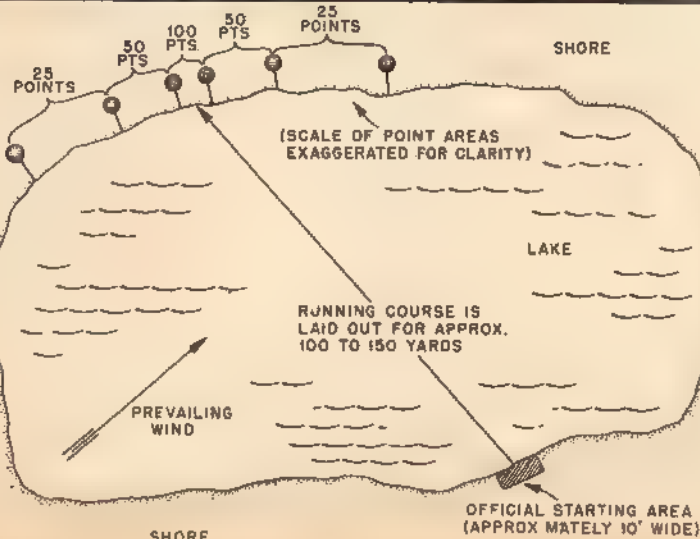
**Adversion, Pet, MI.** We agree with Captain Edward F. Heyn, USAF, that most of us have a pet aversion. Seeing

the caption "original design semi-scale WWI Jenny . . ." which appeared over a photo on page 43 of the July issue prompts him to present an idea of his for our consideration.

"Granted the builder made a nice looking model . . . however, it is an insult to a fine old airplane to suggest that it is a model of a Jenny," complains EFH. "Perhaps I am too much of a purist, or have been at the game too long and have become cynical. However, I am distressed at the frequency with which the expression 'semi-scale' is being used to attempt to disguise a purely functional design, or to excuse the builder of gross incompetence, or ignorance of what a true scale model should look like."

Well, first of all, we checked with the editors and found that the term "semi" scale was their own idea. Bill Jones, builder of the model in question, did not claim that he had turned out a "scale" model.

But to continue with the Captain's plaint. In his book (and as he points out—in Webster's, too), the words "semi" and "scale" are incompatible since the word "semi" refers to any object which has been halved or bisected, and cutting a model in half would no doubt result in some rather erratic flight patterns! In



■ This model power boat event course can be set up quickly to give non-radio controlled boats of all types an equal chance in one event. Alter layout to suit local running conditions. Use of prevailing wind to either side of the course, if possible, will add thrills and unknown quantity to event. Three colors of balloons fastened to poles stuck in the shore are used to mark "target area." The 100-point center area is 15' wide, 50-pt. side areas, 25-30'; 25-pt side areas, 30-40' wide. Each contestant gets 3 attempts; winning score is high total of 3 runs. Have assistants on target side catch boats at the shoreline. Flexibility of this event, plus possibility of any size and type of power boat competing, make for a lot of fun for both competitor and spectator.—Bill Baughman, SCMPBYA.

Models are important to air research. Outstanding Ann Arbor, Mich., Airlifter is William H. Wing (left, center) who was awarded John E. Cline Memorial Trophy as high-point flyer. Exchange Club head makes award; AAA's prez. Al Temple beams.

the building of a proportionally smaller replica of an actual object (Webster again) Capt'n Ed points out that the only concessions to scale in a plane model should be in minor details such as airfoil section, dihedral angle and perhaps an increase in horizontal tail area. All other dimensions and details must be in exact proportion.

Well, we are not going to argue about that! Perhaps you, too, have run across flying scale judges who downgraded you something awful even for minor changes in dihedral, tail size, etc.

"During my 25 years of building all types of model aircraft I have seen some mighty horrible-looking creations represented as being scale models," sums up the Captain, who is currently serving overseas. "Could it be lack of ability, too many prefabricated kits, or just plain laziness? . . . Perhaps the answer lies in using the expression true-scale or exact-scale, but whatever is used it should denote an exact replica of an actual aircraft."

Now, here is some real food for thought. We admit that we ourselves have probably overworked that "semi-scale" label. In the final analysis, a model is either scale or it's non-scale, right? Of course, there might possibly be a difference of opinion over a poorly built scale copy of a real plane, and a smartly executed miniature that was modeled along the lines of a real craft, yet doesn't pretend to be an exact replica.

Take the case of young Johnny Jones, 10, who is putting together an elaborately prefabricated and finely engineered scale kit, but due to lack of experience, skill, or just plain carelessness or impatience, botches up the job. To Johnny, that's a scale model, no matter how badly it turns out. Then there's Johnny's older brother Joe who is a whiz at control line combat and decides to get away from the plank-on-a-string sort of stuff and so sit down and turns out a really gorgeous profile biplane based on a P-51. He goes out and pilots his high-powered

## Most Realistic Model—\$25 Award Winner



NACA aero engineer Edward D. Murphy has built models for 30 years, says this is the first photo he's ever submitted! It's a Sterling Tri-Pacer; K&B .23; Babcock BCR-3; Sonner compound actuates rudder; exhaust-throttle control; 5 lbs. total. Plane has made over 200 flights. Ed, stationed at Edwards AFB, says "my hobby led me into my present profession."

biplane around the combat circle, whipping the pants off his opponents and receiving cheers for risking so much colored dope, decals, and costly accessory attachments in the streamer-cutting events. Now Joe knows he isn't flying a "scale" model by Mr. Webster's or Captain Heyn's definition, but he is pepping up an event with a lot of color and some fond memories of a once-great plane.

Frankly, we think there is a place for all devotees, the pure scalers, the sort-scalers and the far-from-scalers. But we do appreciate the point that's been raised here. Let's all be a little more careful with our language and descriptions; from now on we'll try to remember that a non-scale model can be "scale-like." Is that all right by you, Captain?

**Family Boating Is Fun.** If you want some real fun with model planes try some radio-controlled or free flight amphibian or flying boat stuff—or for model boats

there's nothing that can compare with operating out on a big lake or inland waterway. Now, to do all this you'll require a man-carrying craft. How do you acquire this? Easy—just get the family all hopped up over big-size boating. But how that? Also easy. Just send for a free copy of the "Family Boating is Fun" booklet available from the National Association of Engine and Boat Manufacturers, 420 Lexington Ave., New York 17, N. Y. It's a 16-page, pocket-size compendium that stresses the all-family appeal of boating; all kinds of craft are covered. Compares cost of different types. Act now—get credit for forcing the family afloat.

**Nice Idea.** The Capital Aeronauts of Austin, Tex., renew AMA licenses for all members in good standing at the club's expense each year. Excellent suggestion for all AMA, IMPBA and  
(Continued on page 72)

Jet-powered boats at Detroit regatta did 50 mph. Modelers Bohnstengel, Conrad, Smith.







## MODEL RAIL RACING

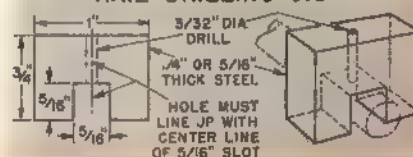
■ In his previous informative and extremely interesting article on the rail racing of powered model cars in England, author D. J. Laidlaw-Dickson presented much of the color of such gala affairs. His concluding remarks concerned the clever little "zonkers" which are guide wheels and part of a patented system covered in this country by U.S. Patent #225-231 (Canadian Patent 615-163).

Now Mr. Laidlaw-Dickson concludes his report:

Several attempts have been made to evolve alternative track attachments outside the patent, but none has been entirely successful, and non-standard systems make inter-club activities impossible. One club—the Eight Model Car Club, which has a figure-eight track—uses a rectangular section rail and somewhat deeper guide wheels, but this has not caught on. This club is notable, however, for a new scale scheme, as they have a fleet of veteran cars, including De Dion, Mercer, Darracq, Benz, and to see these old-timers poodling round at a stately 5 mph is really something!

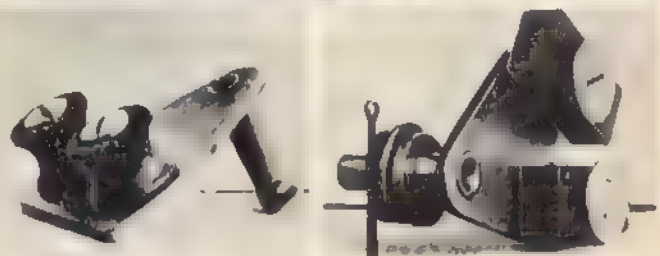
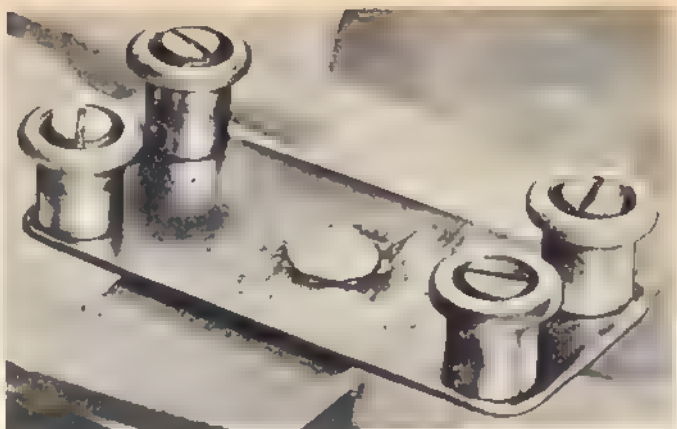
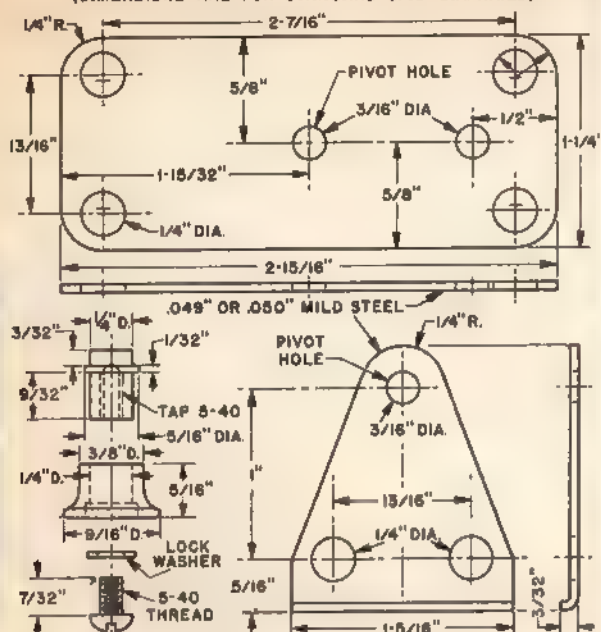
Tracks are so designed that by means of left and right-hand bends the length of the outer car's run is equalized to that of the inner car, to avoid any need for staggered starts. Track shapes therefore tend to be varieties of the figure-eight, which also involves a crossover somewhere and enables gradients to be introduced. An alternative is a dog-leg track

RAIL DRILLING JIG



# DETAILS OF "ZONKERS" OR RAIL GUIDES

(DIMENSIONS ARE FOR STANDARD 5/16" DIA. RAILS)



with a hairpin bend.

Race procedure is that all cars are lined up at the start, being restrained by pegs protruding through the track. Motors can be either started off the track with a suitable wheel attached to an electric hand-drill, or, in the case of more ambitious tracks, via starters located under the track, one to each rail, that enables engines to be gunned on the line. With runners motoring and ready to go the starter trips the holding pegs, and cars then within one length pass over spring pads which set the lap recorders in motion. Surplus Post Office telephone switches have been used largely for these recorders, and anyone with a little electrical know-how can fit them up. Some are highly developed, with lap

by lap flashers; others, of a simpler nature, merely actuate a hand moving round a dial, one for each runner.

Basically, of course, laps can merely be ticked off by human recording clerks, but the installation of a mechanically operated board adds much to the fun. Often the leader will stop during a race, when it must be manually wheeled in to the pits, and may be re-started there, or stalls on the line may again be re-started. One ambitious club is now working on a model breakdown van that will be sent round the track to push in the invalids—equipped with a more powerful engine, and well padded with spring bumpers.

Finally, for the benefit of those who would like to make up a track, here are

some brief details. Each car requires 7½ clear run with the rail in the middle. This means that a three-car track needs an overall width of 22½ ins. or a four-car track 30". Most popular material is ½ in. thick Weyroc board (Swedish hardboard), which comes in 8' x 4' sheets. Economy cutting means that the three-car track straights come two out of a sheet, each 8' long. Curves, which should have a minimum radius of 3', are somewhat more extravagant. The absorbent nature of Weyroc enables any fuel drippings to soak in, and the track tends to improve with age. Thinner, harder hardboard—in ½ in. thickness such as Masonite—can also be used but requires more maintenance; the fuel does not soak in

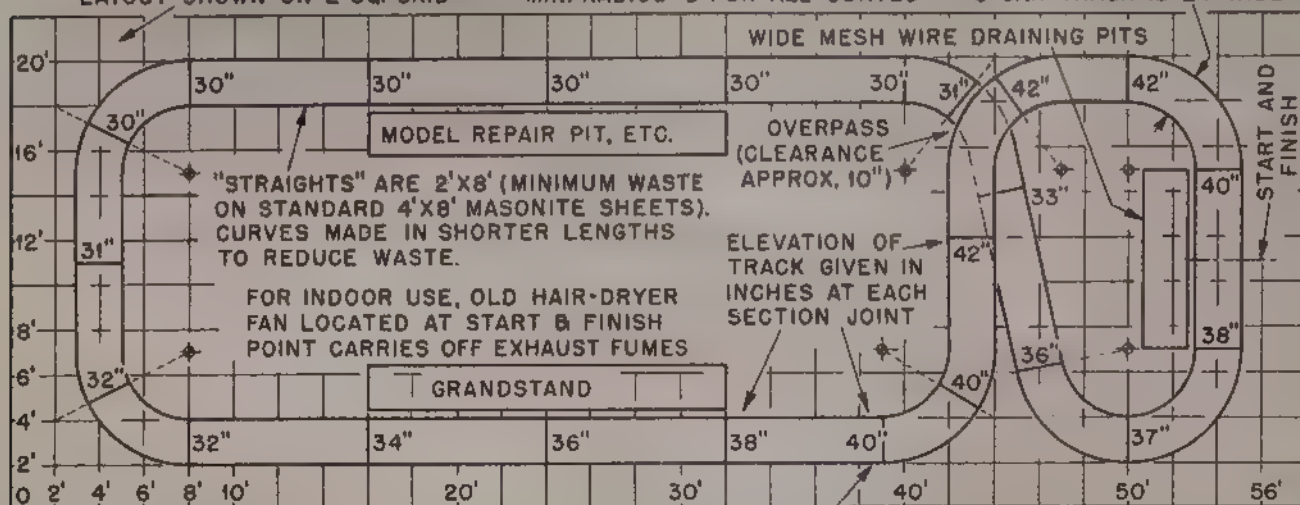
(Continued on page 72)

## TYPICAL TRACK LAYOUT (FOR 30' X 60' SPACE)

LAYOUT SHOWN ON 2' SQ. GRID

MIN. RADIUS-3' FOR ALL CURVES

3-CAR TRACK IS 24" WIDE



LAYOUT CAN BE AT TABLE LEVEL AS SHOWN, OR AT FLOOR LEVEL (26\"

"SCENIC" FOOT-BRIDGE HERE TO CONTAIN CUT-OFF LEVERS



**NEW CLASS "B"**  
**SPEED RECORD**  
**OF**  
**135 M.P.H.**

**SET WITH**



**"39"**  
**FUEL**





Pete Kutschenreuter (shown above) set this new record of 135 m.p.h. for class "B" Speed on May 21, 1955 while flying for "Skip's Island Hobby Shop" at "The Mirror Model Air Show", Brooklyn, New York. Says Pete: "With all the champs at the Island Hobby Shop it's Testor's products all the way! Testor's fuel, finishing materials, cements, and balsa are the finest to be found anywhere." Why don't *you* take a tip from this new speed champ and insist on Testor's . . . *at dealers everywhere.*

*. . . and here's an interesting (and typical) comment from Joseph "Skip" Feldmann of Skip's Island Hobby Shop, Flushing, New York:*

"We have always recommended Testor's '39' Fuel with each new engine purchased from us and will continue to do so in the future. It is unsurpassed both as a break-in fuel and as an all-around all-purpose sport and competition fuel."

**TESTOR CHEMICAL COMPANY • ROCKFORD, ILLINOIS**



**PHOTOGRAPHY  
AND MODELS**

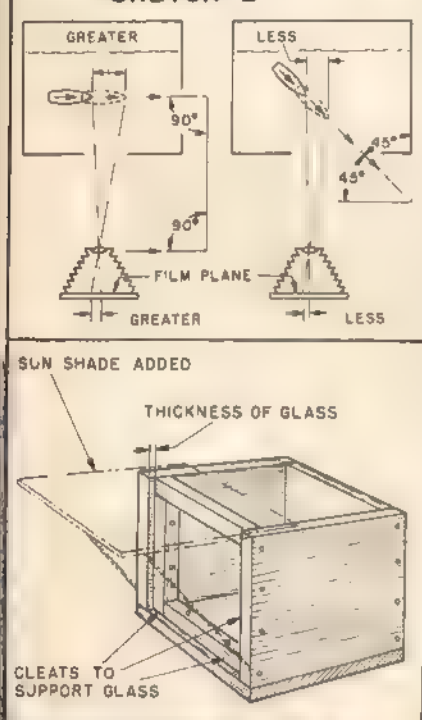
# HOW TO SHOOT MODEL BOATS IN ACTION



**YOU CAN TAKE PHOTOS LIKE THIS!** Just follow the suggestions in this "photography & models" series by Jackson Ingham, Jr. It doesn't matter if your camera is an inexpensive or costly one — the main requirement is that you think about what you're doing before you trip the shutter. Last month we visited the airport to shoot a radio controlled plane model in realistic surroundings . . . this issue it's boats.



### SKETCH "B"



Presented here is a handy gadget for adding realism to your model boat pictures. It allows the low camera angle necessary for this type of shot while protecting the camera from an inadvertent dousing if such a shot were tried without it.

No dimensions are given as you will want to build your "boat-shooting" box to fit your own camera. Johnny was operating a  $3\frac{1}{4} \times 4\frac{1}{4}$  Super D Graflex, which is a single-lens reflex camera well suited for this use, so his box was about  $10" \times 10"$  on the glass end by  $15"$  long. Actually it could have been slightly wider. You want to allow plenty of room for your hands to manipulate the camera controls.

Use a piece of good plate glass or an old glass photo plate from which the emulsion has been removed, to avoid optical distortion of the image. You will notice the Graflex camera has its own sun shade. This could be made part of the box for use with other type cameras. It is very necessary when shooting into the sun. The camera box was waterproofed with one coat of Fibreglas resin (without the glass cloth) and the plate glass fastened in place using resin and narrow strips of cloth.

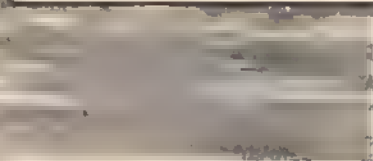
When using the box with focusing cameras keep the model in close to you. Even at 15 feet the image will be quite small. With fixed focus cameras don't shoot further away than 15 feet and at the same time avoid getting too close, which would produce out-of-focus results. Users of twin-lens reflex cameras must avoid going too deep into the water since the "taking" lens is below the viewing lens.

Now for a run-down on these pictures and some information on how made

Opposite page—live steam tug built by author:  $42"$  long, geared-down engine has  $7/16"$  bore; used with six-reed modified E.D. transmitter. Tug as seen by water-level camera. Plain background would have been better, but this is possible only on large body of water. Royal Pan film,  $1/300$  sec.,  $f/16$ . . . . Above, left—Clint Lewis controls tug as wife looks on. Johnny hard at work. . . . Above, right—how the "boat-shooting" water-level camera box looks. . . . Below, left— $21"$  Atwood-powered R/C outboard by Bill Wells, president of Inland Model Boat Club (members supplied models for posing, for which much thanks). This was shot at  $1/200$  sec. on Royal Pan,  $f/22$  opening. This method of shooting is called "panning." In this case the photo was made from a standing position looking more down on the model. Although panning is usually thought of in connection with movies, with still cameras it has the effect of increasing shutter speed. The method is to follow the boat in the view finder as it comes into range, smoothly release the shutter and follow through with the "pan." Photo made in this way with the boat moving at right angles to the camera.

The effect of movement can also be lessened by having your boat subject moving toward or away from the camera at about  $45$  degrees. Sketches illustrate this.

Sometimes it is actually more desirable to use a slow enough shutter speed to allow some movement in the picture. The slight motion in the hand and boat in the photo below, right, makes you feel that the little outboard is really going to go places. Art Mudgett does the releasing. This was shot on Royal Pan at  $1/200$  sec.,  $f/22$ .





## Spectacular Half-A Stunter Can Hold Its Own in Any Circle!

**By ROY L. CLOUGH, JR.**

■ This little Half-A stunt job is the result of a series of experiments undertaken to find out if an .049 job could equal the stunt performance of the much larger and more powerful machines usually employed for this purpose.

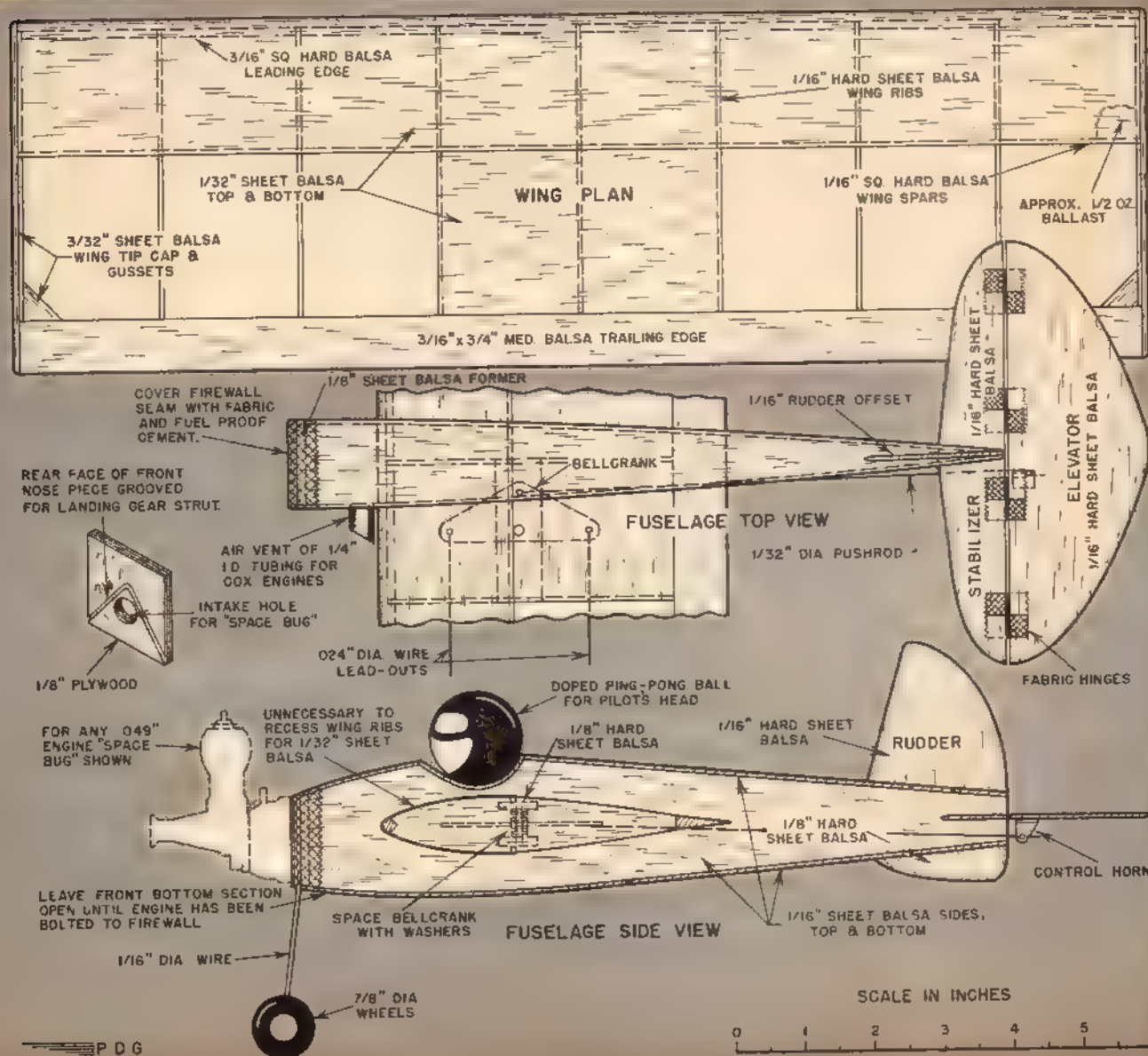
We found that it could. This model will do the pattern just as easily and smoothly, and almost as fast, as the best of the bigger jobs. In the hands of a reasonably expert flyer it will prove the equal of ships up to ten times its own weight and displacement.

It would be pleasant if we could say that the "Teenie Genie" is not only an excellent stunt plane, but considering its simple and straightforward construction, a natural for the beginner. But that would be ridiculous. A really good stunt plane is the worst possible choice for a newcomer. A beginner requires a steady, slow-acting ship with plenty of reluctance about its pitch axis and a mind of its own on the subject of longitudinal stability.

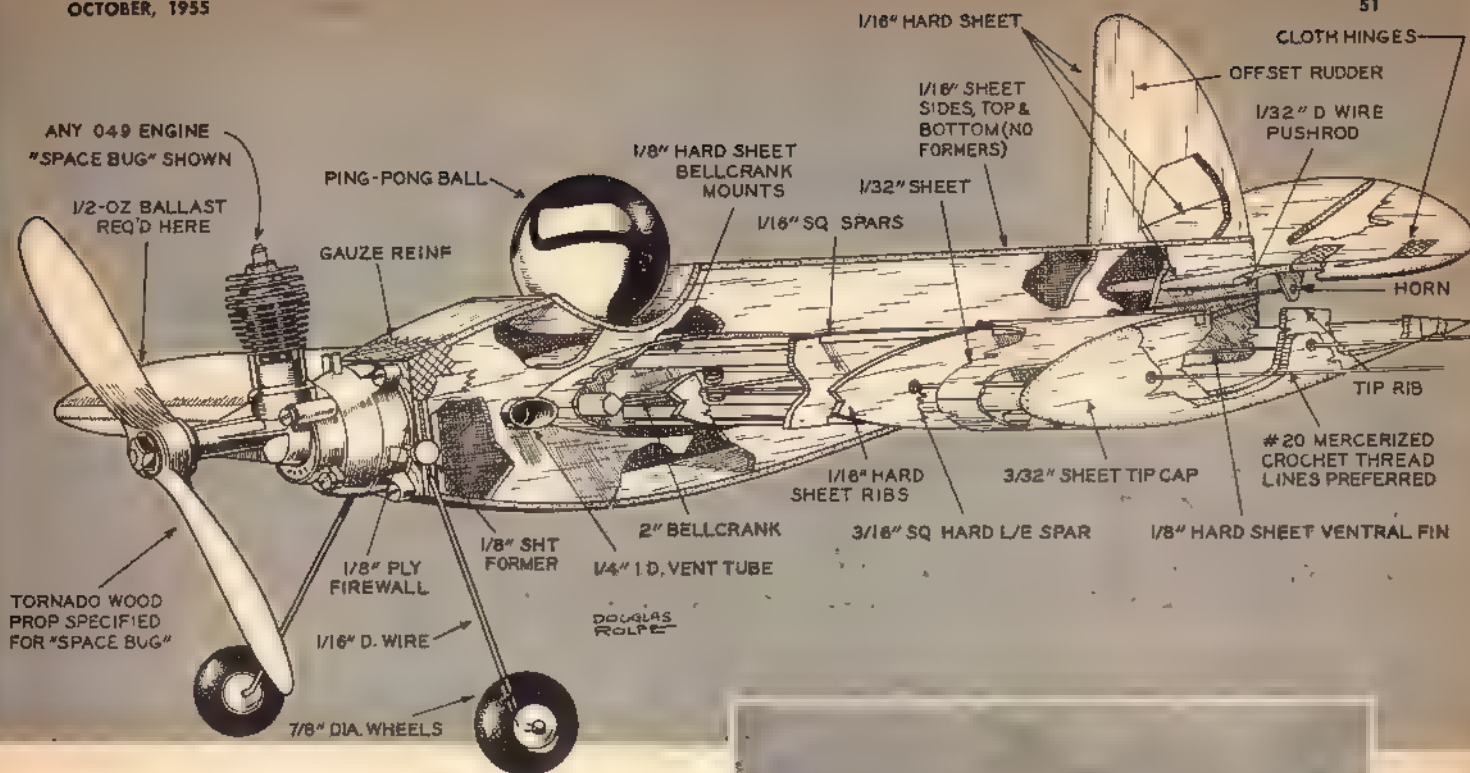
The requirements of a good stunt job, are, in the final analysis, diametrically opposite. It should have no "mind of its own" at all. It should be simply a mechanical extension of the flyer's reflexes, and absolutely subservient to the mind behind the control handle.

"T.G." is that kind of a ship. It is not tricky in any sense of the word, because tricky implies erratic or un-

**'Centrifugal stall-quenching' may be new, but when applied to this bundle of dynamite it produces an eye-opening performance. Don't let size fool you—this is for the experts!**



Full-size plans for A 2 "Teenie Genie" stunter are part of Group Plan # 1055 by Hobby Helpers, 770 Hunts Point Ave., New York 59, N. Y. (50cl).



predictable control response and this one is neither erratic nor unpredictable. But it does react almost instantaneously to control deflections. It goes where you aim it, and it gets there mighty fast. So, before you pick up its handle, make sure you know how to aim, because this little bundle of dynamite has the stuff to bring a fellow a lot of hardware—or to sift him out into the pile marked "wash-outs."

The rig and flight trim are an important part of the theory underlying the model. The main idea was to arrive at a design which would react very rapidly to elevator deflections, and yet not be rigged in such fashion that sudden and violent changes in direction would induce mushing—high speed stalling. We did this by holding wing tip ballasting to a minimum, using the rudder to prevent the nose from riding too far out of the circle, closely integrating the wing and elevator areas with control moments and total weight and power, and last, but far from least, we used a rigging trick we term "centrifugal stall-quenching."

This trick is simply to balance the model on the leading edge of the wing, instead of the first wire, and have the motor as far forward as possible from the bellcrank pivot. How does this work? Well, when the model is looped the mass of the motor ahead of its pitching axis tends to push the nose out of the loop circle and this tends to counter the leverage of the elevator, opening the loop and preventing loss of speed.

By carefully adjusting the elevator area and moments between the C.G., center of lift and tail leverage we arrive at proportions which permit the model to loop as tightly as aerodynamically possible, yet not mush as a result of a sudden control movement. This system can be applied to many conventionally rigged stunters, although it will probably be necessary in many instances to build a new elevator if the present one is of high aspect ratio. With "Teenie Genie" the proportions are already worked out.

Construction is very conventional and should require no great explanation, particularly since the model is intended for the more advanced flyer who probably knows how to put a model together as well as the author. Just a gentle reminder, however, that the difference between a good ship and an excellent one is often only careful wood selection and exacting alignment. The most suitable .049 en-

(Continued on page 89)





**BRAND NEW!**

**\* U.S.S. \***

# NAUTILUS

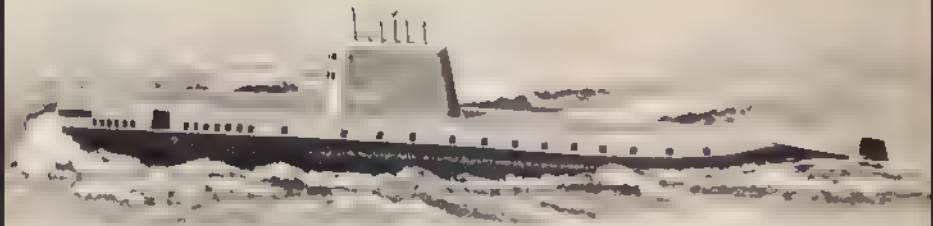
atomic submarine

Patent Pending

A real-as-life operating model of the world's first atomic sub. It cruises on the surface...submerges to periscope depth...then automatically re-surfaces! ALL UNDER ITS OWN POWER! Exciting to watch...even more thrilling to operate. Not a toy—but a real operating scale model fully half-a-yard long! Assemble the few ready-formed parts real quick...and you're set for a truly new and different kind of modeling thrill.

**complete \$1.98**  
except for lead ballast

**OPERATES LIKE A REAL SUB!**  
*Submerges! Surfaces! Cruises!*



Operating Scale Model of the World's First Atomic Submarine

**2 Brand New  
Super Action Models**

**Terrific!**

**NEW!**

**Entirely New!**

**ENTIRELY DIFFERENT!**

**BRAND NEW!**

# FIREBIRD

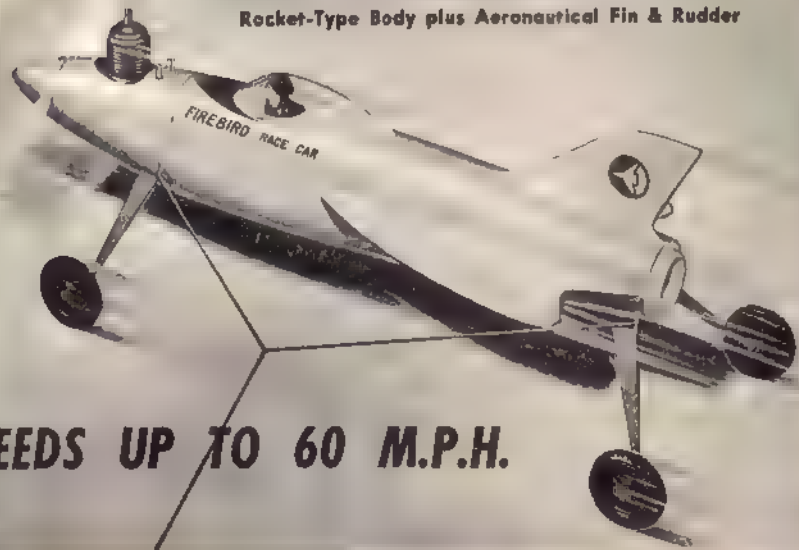
RACE CAR

Hang on to your hats! You're looking at a real "speed demon"...all-new and rarin' to go! You just won't believe a race car priced so low could deliver so much action! It's amazingly fast...actually speeds up to 60 M.P.H. on any smooth surface. See the new "FIREBIRD" at your dealers...right away! You'll love the way this exciting speedster whips along the ground...and the easy way it handles! The all complete kit features a completely carved "bullet-type" balsa body and 4 realistic rubber wheels. All other parts are finished, so it practically falls together!

**POWERED WITH ANY \$1.89**  
Small Bore Gas Engine  
.035 TO .074

**NEW FUTURISTIC DESIGN!**

Rocket-Type Body plus Aeronautical Fin & Rudder



**SPEEDS UP TO 60 M.P.H.**

BE  
SPECIFIC  
SAY—

**SCIENTIFIC**

**SCIENTIFIC MODEL AIRPLANE COMPANY**

113 A10 MONROE ST., NEWARK 5, N. J.

If no dealer is available, add 10c (postage & packing) to cost of model

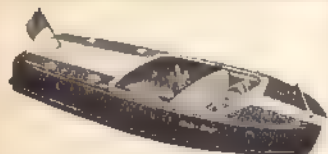
# NEW TERRIFIC SCIENTIFIC SPECIALS


**TORPEDO SPEEDBOAT \$2.50**

LENGTH 20" BEAM: 8"  
Sleek new speedboat for OUTBOARD engines.  
Prefabbed, w. genuine mahogany veneer hull.


**SEA HAWK \$2.50**

"1/2A" Eng., CO<sub>2</sub> or Elec. Motors  
Has a 12" curved balsa hull, brass metal fittings, etc. Aeronautical design.


**RIVIERA \$3.50**

For "1/2A" Eng. or Electric Motors  
Authentic Chris-Craft replica with 12" curved balsa hull & brass fittings. All parts finished.


**BUCKEYE JR. \$3.95**

LENGTH 14" For .020 to .074 Eng.  
A "beaut" of a speedboat. Prefabbed with a curved balsa hull, brass fittings, etc.


**LITTLE BUCKEYE \$1.95**

"1/2A" Eng., Jetex, Elec. Motors  
Low cost speedboat thriller. Prefabbed, 12" curved balsa hull, brass metal fittings, etc.


**HALF-PINT RACER \$2.95**

LENGTH 9" For "1/2A" Gas Eng.  
Model speeds over 40 m.p.h. Direct wheel drive. Prefabbed formed body, rubber wheels.


**AMERICAN BOY \$1.00**

SPAN 18" For .020 to .074 Eng.  
Our U-C trainer, the biggest dollar's worth of model airplane in the world. 100% complete.


**NO. AMER. TEXAN AT6 \$1.95**

SPAN: 18" For .035 to .074 Eng.  
Our extremely popular scale model of the AT6 Trainer. Carved balsa fuselage, etc.


**LITTLE MUSTANG \$1.95**

SPAN 18" For .020 to .074 Eng.  
Famous escort fighter model. Prefabbed. Features carved balsa fuselage, formed balsa wing.


**SECRET WEAPON \$1.95**

SPAN: 24" For .09 to .19 Eng.  
Class "A" profile resinier. Extra rugged. Assembles in a jiffy 100% complete, 100% prefab.


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# JOB CAREER SCHOOL GUIDE

## GPO CAREER BOOKLETS FOR YOU.

As we've said before, one of the best sources of information in general is the U. S. Government Printing Office, which constantly issues pamphlets and books available to all citizens. We keep close tabs on everything this organization publishes (receiving bulletins at a minimum of every two weeks) and herewith list some of the best bets on jobs and careers gleaned over recent months. To obtain them all you have to do is give the title, Catalog Number, enclose the price, and address your order to the Superintendent of Documents, U. S. Government Printing Office, Washington 25, D.C. (Send the money in form of check, cash or money order—not in stamps.) We suggest:

"Aircraft Propellers, Navy Training Courses." General and specific information on nature and operating principles of all types, including the turboprops. 363 pages, illustrated Catalog No. D 208.11:A1 7/11/954.

"The Way to a Job in Government." How to go about getting a job in Federal Civil Service. Cat. No. CS 148:47/2. 5 cents.

"F-M Transmitters and Receivers." Prepared by U. S. Army, this details operation and maintenance of F-M radio xmts and rcvrs. 198 p., il. \$1.25. Cat. No. D 101.11:11-668.

"Lithographer 3 and 2, Navy Training Course." All processes now in use and general instructions on how to operate various types of equipment in a photolithographic establishment. 584 p., il. \$1.75. Cat. No. D 208.11L 71/v.1.

"Story of Hoover Dam." Planning to be a civil engineer? This bulletin describes historical

background of construction, actual construction, and national benefits from dam. 35 cents. Cat. No. I 1.72:9/3.

"Aircraft Engines." Prepared by U. S. Navy for its airplane mechanics, this book offers detailed study of all types of aircraft engines, from reciprocating to jets. 327 p., with il. in both black and white and color. \$2.25. Cat. No. D 208.11A17/5/953.

"Stratigraphy of the Morrison and Related Formations, Colorado Plateau Region, a Preliminary Report." Geologic dope on Plateau, with emphasis on distribution and origin of uranium-bearing rock beds. 20 cents. Cat. No. L 19.3:1009-E.

"Government owned Inventions available for license." List of 3,658 such inventions, active as of January 1953, ordinarily available to public on nonexclusive, royalty-free license basis. \$1.25. Cat. No. C 1.2:in 8/2/953.

"Photography (2 Volumes)." Navy Training Manuals. Volume 1 deals with basic fundamentals—cameras, developing, printing, etc. Volume 2 covers specialized fields—color and aerial photography, motion pictures, care of equipment, etc. Each volume well over 400 p., il., each \$1.50. Cat. No. N17.25:P56/2/947.

"Electricity." Basic reference book on the fundamentals. 383 p., il. \$1.25. Cat. No. D 208.11:EL 2/3/952.

**WORTH SEEING.** The world's largest revolving globe of the world was dedicated this past summer on the campus of Babson Institute of Business Administration at Wellesley, Mass. Higher than a two-story house, composed of curved steel plates coated with porcelain enamel in color showing the lands and oceans whose delineations are based on aeronautical charts, this 28-foot-diameter sphere was designed as a visual aid in teaching geography, military strategy, export and import trade and the like. Open to the public, free. For educational and other groups planning to visit the globe, a letter to the college giving time and date of arrival is all that is required.

**NOW: CHOOSE YOUR ARMY UNIT.** Several months ago we pointed out the U. S. Army's new plan whereby prospective enlistees can choose an Army technical school and be guaranteed of training there before joining the service. Since then the Army has announced another plan which enables young men to choose the very unit in which they would like to serve, the big gimmick being that thus they can know exactly where they'll be stationed and for how long during their whole Army term. In other words, now you young fellows without prior military service have the opportu-

nity of planning your career, in regard to schooling, family life and such while serving Uncle Sam and better integrating these things with the "afterward."

It's called the Unit Rotation program, and works on the principle that two companion units simply swap places after a definite period of service for each, with no ifs, ands or buts. For instance, last July the advance contingents of the 1st Infantry Division left southern Germany and came to Fort Riley, Kans., while men of the 10th Infantry Division stationed there left to take up their post in southern Germany. The "units" include whole divisions (11th Airborne, for instance), regimental combat teams (like 508th Airborne), separate regiments (3rd Armored Cavalry, etc.) and even separate battalions. New units are constantly being added to the program. Note: You can enlist in the divisions from anywhere in the country; if you select the smaller units, you must live within the Army area that is "home grounds" for that particular group.

The Unit Rotation soldier has various advantages over the ordinary enlistee. Besides knowing just where you'll be overseas and for how long, for instance, you as an individual get "stability in the service."

You receive your basic training with your outfit, make friends to keep. You stay with an outfit where your abilities are known. You shift around less than other enlistees, being assured of 31 months in Stateside garrison (non-Rotation Unit soldiers can be sent back overseas after 18 months in the U.S.). Cognizant of just where you'll be tomorrow, you can better plan your career.

And if this new Army plan appeals to you, don't forget that you can still choose the Army technical school you want to attend, before enlisting. There are 25 such schools offering more than 100 courses (Radar Repair, Heating and Ventilating, etc.), many of which have real value in civilian life.

The minimum enlistment is for three years, with special advantages for a four-year term. To obtain all the info, consult the Army Recruiting Station nearest your home.

**BETWEEN THE DOTS.** Outstanding among the institutions of higher learning which operate airports in connection with their aviation education programs is the University of Illinois, which owns and operates one of 771 acres at its home town of Urbana that also serves as the municipal airport. . . . Today "collegiate airports" are a valuable aid in student flight instruction, courses in maintenance, airfield operation and management and other phases of the aviation curriculum. . . . Some schools rent space at a municipal 'port to further such training. Others, like Ohio State, own and run small fields primarily for their own use.

Interested in chemistry, chemical engineering? That interest could lead to employment in an industry whose connection with matters chemical you may not have suspected—the manufacture of ammunition, and sporting ammunition at that. . . . According to the Remington Arms Co., more than 100 different chemicals play a part in the making of modern ammunition. . . . Such companies maintain chemical labs devoted to constant research for improving quality of products like shotgun shells, which need chemicals in priming mixtures, smokeless powder, shot shell bodies (that use waterproof adhesives) and other constituents.



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## CALENDAR of HOBBY MODEL MEETS and SHOWS

List your hobby club's public shows, exhibitions and contests here! There's no charge. Advise "ATH" not less than 90 days in advance. Give telephone of contact man if possible. Send to "Calendar," c/o Air Trails HOBBIES, 304 E. 45th St., New York 17, N. Y.

Address of contact man is in the same city as site of event unless otherwise specified. This publication does not assume responsibility for any errors in listing.

N. Y.—Flushing, Sept. 11. IMPBA model boat race. Bob Graham, 127 Cottage St., Jersey City 6, N. J.  
CONN—Hartford, Sept. 11. Team racing air-model meet. R. H. Haines, 75 Evergreen Ave.

ILL—Chicago, Sept. 11. IMPBA model boat race. J. R. Mathews, 10451 S. Parnell Ave., Chi. 28.

CALIF—Inglewood, Sept. 11. Skywolves' team race air-model meet. D. C. Crystal, 805 E. Palmer Ave., Compton.

IND—Evansville, Sept. 11. AMRCA model car race. Kenneth Craig, 309 N. Willow Rd.

N. Y.—Plainview, Sept. 11. M. Y. Aerobats air-model meet. Murray Quirk, 410 E. 57th St., Brooklyn 3.

MICH—Detroit, Sept. 11. IMPBA model boat race. Charles Baxmann, 2991 Garland Ave.

MD—Baltimore, Sept. 11. Control line air-model Olympics. F. G. Stroh, III, RFD 6, Pasadena, Md.

OHIO—Cleveland, Sept. 11. AMRCA model car race. Robert Seigmeier, 6703 Pelham Drive, Parma.

MASS—Boston, Sept. 11. N. E. Wakefield Group's air-model Sweepstakes. Lee Renaud, 300 Hyde Park Ave., Boston.

CALIF—Sacramento, Sept. 11. Oakland Cloud Dusters Half-A free flight air-model meet. Joe Bilgri, 256 1/2 Locust St., San Jose 10.

OHIO—Cleveland, Sept. 11. Cuyahoga County R/C air-model meet. J. W. Grege, 355 Grand Blvd., Bedford.

N. Y.—Gloversville, Sept. 11. Lions' air-model meet. R. L. Elliott, 48 Curtis Terr., Pittsfield, Mass.

N. J.—Perth Amboy, Sept. 18. Flying Olympics air-model meet. J. P. Gyorki, 115 Watson Ave., Woodbridge.

WASH—Seattle, Sept. 18. IMPBA model boat race. E. W. Drouillard, 141 N. 85th St.

OKLA—Tulsa, Sept. 18. Glue Dobbers Nordic air-model glider meet. W. H. Kehr, 4840 N. Johnstown.

CONN—West Haven, Sept. 18. Southern N. E. control line air-model meet. A. D. Mahieu, 181 Maplewood Ave., Milford.

N. Y.—Bayville, Sept. 24. Screamin' Demons' L. I. Sound hydro air-model championships. D. J. McGovern, 81-53 242nd St., Bellerose.

N. J.—Union, Sept. 24. UMAC air-model meet. A. J. Karp, 625 18th Ave., Newark.

PA—Philadelphia, Sept. 25. IMPBA model boat race. Ray Seavey, Jr., 8634 Temple Rd.

MICH—St Clair Shores, Sept. 25. Modellers' proto speed and team racing air-model meet. Howard Lewis, 21520 Calif. St.

IND—Newcastle, Sept. 25. AMRCA model car race. Russell Harter, 805 S. 20th St.

PA—Johnsville, Sept. 25. Bucks County Federation air-model meet. A. P. Becker, Jr., 2212 Griffith St., Phila.

ILL—Chicago, Sept. 25. IMPBA model boat race. J. R. Mathews, 10451 S. Parnell Ave., Chi., 28.

OHIO—Columbus, Sept. 25. AMRCA model car race. Clarence Miller, 1207 Liffey Ave.

KAN—Wichita, Sept. 25. Wichitawks' air-model meet. J. P. Valle, 3891 E. Bruce.

WASH—Seattle, Sept. 25. IMPBA model boat race. E. W. Drouillard, 141 N. 85th St.

IND—Michigan City, Sept. 25. National Mites Race Car Association model car race. C. W. Foster, Jr.,

Air Trails HOBBIES For Young Men

MICH—Detroit, Sept. 25. IMPBA model boat race. Charles Baxmann, 2991 Garland Ave.

OHIO—Cleveland, Oct. 1-9. "The Cleveland Press" Do-It-Yourself Hobby and Photo Show. Cleveland Public Hall. "The Cleveland Press", 1420 E. 9th St.

ILL—Harvey, Oct. 2. R/C Club of Chicago air-model meet. R. E. Webb, 1303 W. 79th St., Chicago 20.

IND—Anderson, Oct. 9. AMRCA Indiana Jubilee model car race. Bill Cronin, 521 N. Jefferson St., Hartford City.

WASH—Seattle, Oct. 9. IMPBA model boat race. E. W. Drouillard, 141 N. 85th St.

CALIF—Ballico, Oct. 8-9. Modesto Aerial Robots air-model meet at Turlock Municipal Airport, W. E. Fischer, 543 Castle St., Modesto.

MICH—Detroit, Oct. 9. AMRCA model car race. Glen Fairabend, 20242 Russell St.

MASS—Boston, Oct. 9. Boston Model rally for planes. Lee Renaud, 220 Hyde Park Ave.

N. Y.—Flushing, NYC, Oct. 9. IMPBA model boat race. Kissena Park. Robert Graham, 127 Cottage St., Jersey City, N. J.

CALIF—Santa Ynez, Oct. 16. Annual FAI air-model meet. W. J. Knapp, Jr., 2733 Verde Vista Dr., Santa Barbara.

OHIO—Akron, Oct. 23. AMRCA model car race. Guy Richards, 3353 Magadore Rd., Magadore.

WASH—Seattle, Oct. 30. IMPBA model boat race. E. P. Turrella, 14811 S.E. 42nd St., Bellevue.

## The Readers Write

Let's hear from you! Address all letters to Air Trails HOBBIES For Young Men, 304 East 45th Street, New York 17, N. Y.

(Continued from page 4)

"Air Progress" for 1955/56 . . . I have the last three issues of Air Progress and consider them a valuable reference. I would appreciate knowing if and when you are going to publish a 1955-1956 issue.

James Towell, Cortland, N.Y.

• '55-'56 Air Progress went on sale last month.

Hole-y Cow, Joe! . . . "Remove button through a hole too small"—puzzle says. "Button and string must be passed through hole." (This was in "Trick Stuff," July issue). In my opinion solution is incorrect. The button or buttons do not pass through the hole, rather they pass through the loop of paper which passes through the hole.

Joe Krakaszkas, Little Falls, N.J.

Tool Engineering . . . As a subscriber, I have often noticed your articles on job opportunities offered in the aviation field. However, I have yet to find one small note on one of the most fascinating skilled jobs that most manufacturers are paying premium prices for. To be more specific, production engineering and tool design. Anyone can draw pretty pictures and add dimensions to them. However, it still takes good production engineers to figure out how they can be made and even more skilled tool designers to make some of these wild dreams a reality. For every part, there are a few dozen tools that have to be made as well as new and sometimes fantastic machines to be designed and made to work.

A. Barden, Lake Hiawatha, N.J.

• We are planning to run "Career Survey" on tool engineering in an early issue.



## Model Boating

(Continued from page 6)

in other events kept things humming, with all speed events right on schedule; unofficial clocking showed that the outboards were making up to 15 mph, while the air-propelled boats hit as high as 25 mph. Dave Bogue and Warren Pugh wound up their big hydros to give the spectators an idea of what real model speed looks like on the water.

Biggest laugh of the day came when Dave Bogue's Sea Dart, pushed by an Atwood outboard, buzzed across the pool, climbed a foot-high vertical cement wall to end up on dry land. Photographers from local papers covered the event, and many feet of film were taken by the Indianapolis Park Board; the film was to be shown on the local TV station.

Winners were: *Non-radio Steering*—1. Skee Boisvert; 2. Bill LeFeber; 3. Richard Woodruff. *Non-radio Racing*—1. Robert Peterson; 2. Bill LeFeber; 3. Vestal Smith. *Outboard Tether*—1. Ray Scott; 2. David Bogue; 3. Skee Boisvert. *High Point Trophy*—tie between Skee Boisvert and Bill LeFeber. *R/C Steering*—cancelled due to interference.

Attempt to run the "Price Memorial Steering Race" by the SCMPBA at Alondra Park in Los Angeles, was fouled up—literally—by weed growth in the Lake. It should be explained that the race is for non-R/C boats, and was named in honor of Bill Price, very popular Vice-Commodore of the Association, who died this spring. Bill was a specialist in glow plugs, and will be missed by his many model boating friends. The Steering contest had been tried the year before, and it was decided to put it on a more firm annual basis, to perpetuate Bill's memory.

Quite a number of entrants signed up, but with the first runs across the lake it was evident that some other time or place will have to be used; each boat that started was hampered or completely stopped by the weeds.

Bill Baughman, who sent us this information, also gave a few notes on his experiences in the rugged Third Annual Cross Channel Race for full-sized outboards, which is from Catalina Island to Long Beach. Seems the event has grown so much that there were 15 classes this year, and 150 entrants actually made the trip to Catalina, while about 140 managed to finish the racing run back to Long Beach, the others flipping or conking out. Bill was accompanied by his wife and says it was a really tough ride back; he was in one of the smallest class boats, so was continually being passed by the bigger and faster jobs—and every time one went by Bill figured that was the end of his racing for the day. He didn't finish among the winners, but was apparently quite happy to finish at all! Bet he sticks closely to model boat racing for awhile.

Model boatmen in the vicinity of Fresno, Calif. are requested to contact M/Sgt. Paul E. Myers, Jr., (161 Castle Dr., Atwater, Calif.) relative to forming a model boat club. Paul has been stationed in the middle Southern states, where he was active in forming a club, and later joined the IMPBA. Having been transferred to California, he feels there should be some sort of boating organization to take in Fresno, Modesto, and neighboring communities, and he is willing to do the hard work needed to get such a group

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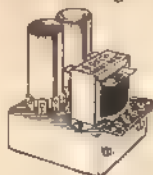
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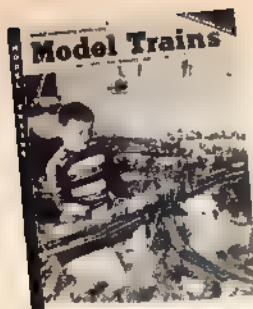
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Broadcasting  
System**

Air Trails **HOBBIES For Young Men** under way. He has prepared sheets to this end, and is asking hobby dealers in the area to insert them in all boat kits they sell. Paul builds his own boats and R/C equipment, expresses most interest in the latter endeavor.

**Commercial Notes.** A line of marine paints has been added to the many model finishing products marketed by Pactra Chemical Co. (Los Angeles 38, Calif.). Called "Sea Gloss," these paints are put up in glass jars, colors being white, cabin blue, bottom bronze, spar varnish, and mahogany and oak stain and sealer. To introduce these paints to model boatmen, Pactra offers Kit #5B, which includes five jars, sells for \$1.

A husky motor made expressly for model boats is being introduced by Polk's Model Craft Hobbies (314 5th Ave., New York, N. Y.) under their Aristo-Craft label. Of exceptional power, the motor is a double permag type, and is designed to run at low speed, so that reduction gearing is not required. It works best at a speed of 1250-1500 rpm, has a voltage rating of 3-12 V., but is normally used on 6 V. The motor is rated at 1/20 hp, will sell for around \$5.

We have mentioned the Babcock Sequence Reversing and Speed Control Relay in ATH before, but now have more details on this unit. Manufactured by Babcock Radio Engineering, Inc. (Van Nuys, Calif.) the relay is self-powered, that is, it does not need rubber bands to turn it. It is only 1 3/4 x 1 1/2 x 1 1/2" overall, and weighs 1 1/2 oz. There are 8 control positions, and the contacts may be connected in various ways to give forward, reverse, high and low speed, etc. Contacts will handle 10 A at 6 V., and there is an auxiliary contact that closes momentarily every time the relay coil is energized; this may be used for signaling, etc. The coil takes 1 ampere at 3 V. but this drain is only on for the very short interval needed to step from one position to another. Metal parts are plated to withstand boat use without corrosion. Price is \$12.95, at your hobby shop.

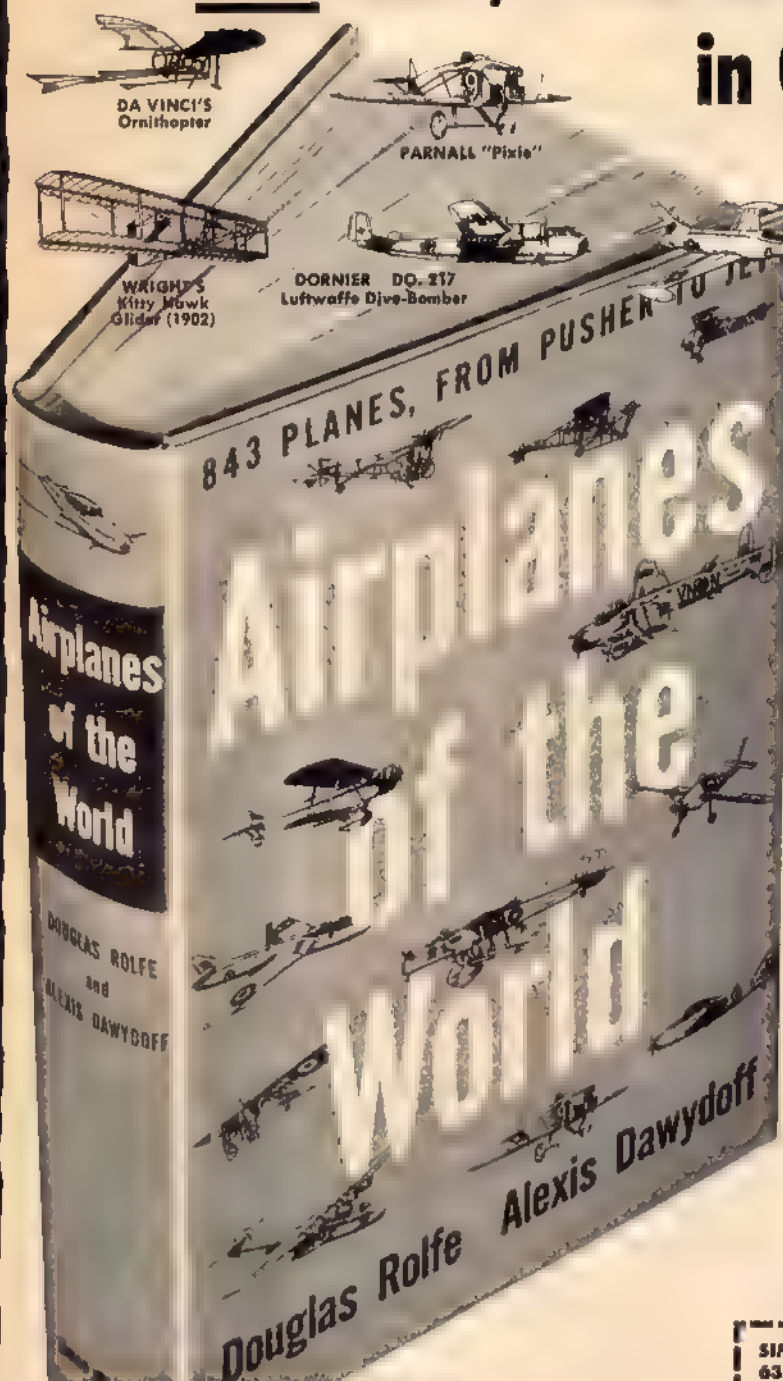
Surf Skimmer is new offering of Enterprise Model Aircraft (Mineola, N.Y.), comes with Space Bug, Jr. engine all mounted, and with fully carved balsa hull. All you have to do is paint the boat, install the hardware supplied, and she's ready to go. Price will be \$8.95.

All-aluminum model boats that are exact copies of full-sized craft are made by Southwest Mfg. Co. (Little Rock, Ark.). Modeled after the famed "Arkansas Traveller" Sportsman, the boats are 17" long, and designed for use with either electric or glow outboard engines. Boats cost \$5.95, come less motor, but with battery clip and other accessories.

Model 5PN Multi-Servo made by de-Bolt Model Engineering Co. (Williamsville, N. Y.) is compact unit—2 1/2 x 2 x 1 1/4"—that not only steers your boat, but includes switching mechanism for complete control of electric drive motors. 5PN weighs 3 oz., can put out over 1/2 lb. pull to the rudder. Like other Multi-Servos, this one works on 1 1/2 V.; it incorporates two electric motors, requires no spring or rubber-band power.

**Next Month:  
YOUNG MEN**

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Kitty Hawk  
Glider (1902)

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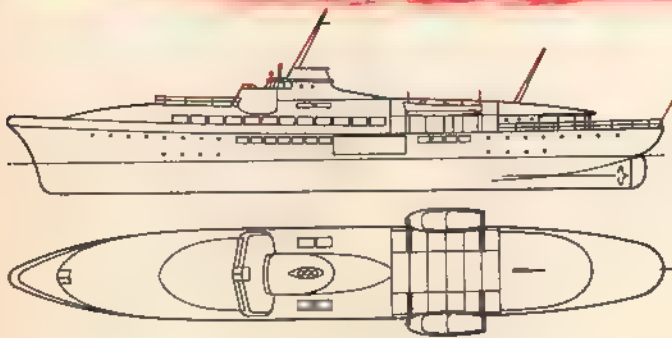
# Boat Design Competition

Air Trails HOBBIES For Young Men

**FIRST**  
**\$50**  
**AWARD**



For the multi-millionaire, Henry Hansch of Buffalo, N. Y. has this 1,000-ton super-de-luxe yacht design provided the customer has over \$2 million to spend. The length is 290 ft. overall, and power two 1500 hp diesels. This streamlined floating palace has 12 master staterooms, each with connecting bath, 9 staterooms for servants and crew, a swimming pool under glassed-in deck, lounge-bar. Equipped with a retractable loading ramp; carries two 35-ft. boat tenders in hull.



Utility speedboat by Carl Pries III of Seattle, Wash., for use on lakes or rivers. Hulls are of lightweight plywood construction covered with fiberglass for additional strength, smoothness. Can be powered by 7½ to 16 hp outboard equipped with longer lower unit. Pontoon flat bottomed, with shallow vee for better planing.

**SECOND**  
**\$25**  
**AWARD**



**THIRD**  
**\$10**  
**AWARD**



Richard Almy, Jr. of Front Royal, Va. has adapted catamaran principle to aircraft carrier. This should make the ship a good stable platform for launching and landing aircraft in rough sea, while its width will permit faster deck operations. Each hull contains steam turbine engines driving two propellers. Ship is 800 ft. long; beam 195 ft.; speed 35 knots.

Rules governing this design competition are as follows: Profile (side), plan (deck) and (cross) sectional views of the proposed craft will be required, plus any detail sketches necessary to illustrate unusual features. Do not handicap yourself by submitting hull drawings less than 8 inches in overall length. Give sketches of craft from three-quarter front and rear positions. Photos of a model of the proposed design may be included. Information of powerplant(s), estimated performance, dimensions and explanations of

special features are required. Data as to age, occupation or schooling of the entrant should accompany each submission. Mail entries to Best Design Competition, Air Trails HOBBIES For Young Men, 304 E. 45th St., New York 17, N. Y. Entry each month judged most practical or of greatest significance will receive \$50; \$25 will go to second place and \$10 for third. The editors regret they cannot enter into any correspondence or return any of the submissions.

## Engineering Jobs

(Continued from page 29)

ment in aviation while in high school, and certain other positions will be available to you upon graduation. Your success in industry will depend upon your ability and education. In aviation, where the pace of progress is extremely rapid, you will find it especially helpful to your success to secure the maximum in education.

**POWERPLANTS, ACCESSORIES AND SUB-CONTRACTORS.** The aircraft manufacturer usually produces only the airframe. The engines . . . whether they are piston-driven, jets or rockets are purchased from a powerplant maker.

Accessories such as propellers, radios, electronic equipment, armament, hydraulic units, wheels and brakes, and the many hundreds of other components used in the plane are manufactured by scores of companies all over the country. The design and production of these products require the same step-by-step procedures as the airframe.

There are 1060 manufacturers making powerplants and major accessories. Each of these manufacturers offers you opportunities similar to those described for the airframe manufacturer!

**SUB-CONTRACTORS.** The aircraft manufacturing industry, large as it is, uses 60,000 sub-contracting companies to make such things as aircraft hardware, fuel tanks, seats and upholstery, Nylon and asbestos cloth, etc. These are smaller firms in most cases, but they still offer many opportunities. Personnel working for the sub-contractors are usually trained by the aircraft or powerplant manufacturer where special products are involved. Wages and educational requirements are similar to those described earlier for aircraft manufacturing.

The aircraft, powerplant and accessories manufacturers are continuing to expand. In 1939, they employed 48,639 people and the figure was over 830,000 in January 1954, when aviation became the nation's leading employer. This is an increase of better than sixteen times in less than sixteen years . . . big things have been going on in aviation . . . all within the span of your school life. Today, to young men with bold ideas, aviation offers unlimited opportunities. Broader scope for your ability and the chance for fresh creative thinking are yours in this fabulous industry.

In the next and final article in this series, the author will discuss the other job classifications, tell of rocket and missile production, and outline some of the major developments just over the horizon that spell future opportunities for engineers in the aircraft industry.

## "Merrimac" & "Monitor"

(Continued from page 22)

in the balsa ring cemented to hull top. Seams in the hull surface of the original boat are represented by threads stretched over the surface before you apply the last coat of dope.

This craft floats even higher than the artist has indicated on the drawing—actually, it sits right on top of the water like a lily pad. It doesn't take much power to drive it, and is thus an excellent place to get some more use from that tired Half-A engine that won't do much in your model planes any more.

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for battery powered R/C model boats,  
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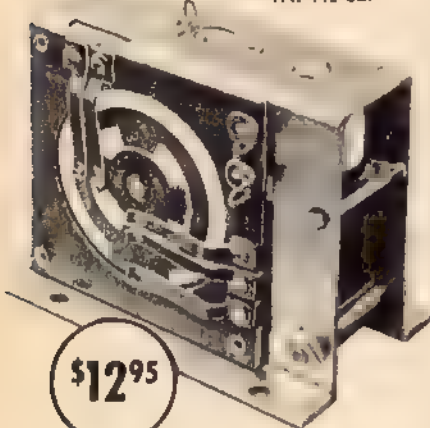
8 POSITION  
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## Under Control

(Continued from page 15)

able to try the speed course in an hour's time, quite a few of them making 3 or 4 passes. Jack Port showed up for his first contest since winning the 1953 Nats, and had the same ship, which Ernie says flies just as beautifully as ever.

A new arrangement was tried for the Spot Landing; a single circle of 70 ft. diameter was marked out—landings inside were good for 12 points. Outside the circle—no points. This arrangement speeded judging since no measuring was ever needed, and seemed agreeable to the contestants. Winners of the Multi class were: 1. H. deBolt (Buffalo); 2. Ernie Kratzet (Detroit); 3. Jim Gall (Toledo). In Rudder: 1. Tom Dion (Toledo); 2. Jack Lemon (Detroit); 3. Earl Anderson (Detroit).

News of R/C in the Shreveport, La., area comes from Dick Davis (Route 4, Box 22, Shreveport, La.), who writes that after lengthy pioneering work by a few old hands, there are now 14 active flyers in the area, with 23 planes. They fly at Piermont Acres every Sunday, and welcome all persons interested in R/C. It is expected that an R/C club will be formed very soon. Several of the group are from Barksdale AFB; Capt. Art Brock is one who is well known in R/C circles around the country. Dick lists a bewildering array of planes and flyers who are active, and says most of the boys use radio tone equipment and escapements or multi-servos. A few are on proportional. Youngest in the group is John Embrey, 14, who flies a Tri-Pacer. Many of the modelers use Badaco equipment, which is manufactured in Shreveport.

Technical Topics. Gordon Gabbert says he is in his usual pre-Nationals condition—no plane to fly. His 7 ft. Cub stuck in hard-over rudder and piled in. He has just finished a new receiver based on the AES Mac III; the receiver feeds a 5-reed bank, and Jaico relays are used for the controls. Complete receiver is canned and weighs 10 oz., of which 4½ oz. are in the case. Transmitter will be a Babcock single channel, converted to crystal control on 51 mc.; a special heavy-duty audio choke tuned with silver mica condensers controls the audio, tones, and Gabbey has tested the complete transmitter for moisture, heat and cold, and found the tones hold perfectly steady. An "Alex Schnieder Cub" is now under construction to hold the new receiver.

Vibration troubles with a 3A5 tube in a Babcock receiver were mentioned in a recent column, and we learn from the Babcock Radio Eng. Co. that they have a very simple solution; they simply slip a ½" length of large rubber tubing over the 3A5 tube, to hold it away from the metal case. The tubing has to be rather large diameter, of course, and will probably not be easy for the average modeler to obtain; Babcock will supply pieces free to anyone who requests same—write the company at Box 3097, Van Nuys, Calif.

First copy of Dr. Walter Good's dual simultaneous proportional control system that we have heard has been air tested (aside from Doc Good's own original setup which is still going strong) is one made by Maynard Hill (309 Princeton Dr., Pittsburgh 35, Pa.). He has had quite a few successful flights, but turned

up an unusual bug; seems he fitted the receiver with some surplus 3E5 tubes, since he couldn't get any of standard make. They worked fine, but he found his A batteries seemed to die awfully fast. A current test showed the "3E5" tubes took twice as much current as they were supposed to, so Maynard can only theorize that the dealers had removed the original markings from 3V4 tubes, and remarked them 3E5! One bonus is that the filament voltage can drop to .9 or so and the tubes still work pretty well! Maynard has been running some tests on "recharging" dry cells, and so far has not been convinced such an operation is worthwhile. His tests have shown that the recharge raises the cell voltage quite drastically, but that it drops just about as fast in use so there is little net gain.

So many requests were made to copy the original plans of his shoulder-wing "Ascender" that Dale Root has had some prints made up. This is a really attractive 66" span plane that looks quite a bit like his Half-A "Little Freq," and the plane is full size. We don't know the cost, but readers can get the dope from Dale at 6036 Telegraph Ave., Oakland 9, Calif. Plane has a semi-symmetrical tapered wing and symmetrical stab; all ribs are shown.

Commercial Products. Modelers who do lots of R/C flying on fields where the conditions are not too good (tall and tough weed coverage, for example) are appalled at the high mortality rate of propellers, cost of which often runs greater than fuel or battery costs. Such flyers will be happy to learn that practical flexible props can now be had; these are the Keil-Kraft make, originating in England, where they have been used for a number of years. The line will be carried by Polka Model Craft Hobbies (314 5th Ave., New York, N. Y.). These props are of tough plastic that will flex upon contact with any object, yet retain their pitch perfectly under power. A variety of sizes will be carried, and while prices will be considerably higher than for wooden props, the long life of the Keil-Kraft jobs should make them well worthwhile to R/Cers. Blades have larger area than standard wooden props, and since they weigh more, these units give quite a bit more "flywheel" action to aid in starting balky engines.

An interesting German-made escapement is being marketed in the U. S. by Wilshire Model Center (1326 Wilshire Blvd., Santa Monica, Calif.). The unit has a unique balanced armature action, but is what we generally call the "self-neutralizing" type. That is, it has only two operated positions, and returns to neutral when you cut off the signal. Escapement weighs 1.2 oz. and draws only 80 ma. on 3 V., yet will handle very heavy rubber power. It retails for \$5.95. W.M.S. will also handle a German R/C plane kit, and also receivers and transmitters, all these units being produced by the makers of the "Taifun" diesel engines.

In addition to case which holds four pencils and four medium cells, Ectron Products (Box 393, Smyrna, Ga.) has a new combination box that will carry six pencils and two 22½ V. batteries such as the Eveready 412. Latter unit will thus handle all the batteries required for small planes, and weighs only 1.8 oz. All the cases are made of riveted aluminum, with heavy fiber end plates. Contacts at one end are spring-loaded, to prevent vibration troubles. The A-and-B unit is



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No blocks to carve.

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Wing span ..... 46"  
Wing area ..... 525 sq. in.  
Overall length ..... 24"  
Weight ..... 22 oz.  
Power ..... 19 to 36 cu. in. disp.

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Fully tapered wing smoothes  
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Each construction step now photo  
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called "Multi-Pak," sells for \$2.25, while the pencil and medium cell "Posi-Tac" cases cost \$1 and \$1.25 respectively. All will be available through hobby shops, or from the makers.

Our preliminary mention of new Babcock elevator control unit in a past issue referred to it as an "escapement." The unit is actually a motor-driven servo unit, and does not work on a sequence principle, as the word escapement implies. It is intended to take the place of the Babcock-Bonner elevator servo, which is no longer being made.

We have been informed of a new hobby shop which will handle R/C exclusively; to be called Jere's RC Shop, it will be located at 5348 Devonshire Ave., St. Louis 9, Mo. This shop has been appointed exclusive dealer in the area for Ace Radio Control products, and illustrated price list will be mailed free of charge. Present special is a fiberglass kit which contains 9 sq. ft. of cloth, one pint resin, catalyst, resin thinner, acetone for cleaning brushes (and fingers!), etc., plus complete instructions.

Control Research (Box 9, Hampton, Va.) has free sheet of new additions to line; listed are Telex sub-min plug and closed circuit jack for \$1.00 per pair, 5000 ohm Jaico Little Gem relay for \$4.95, 26 ohm wirewound pots for speed control of motors in proportional pulse boxes at 50c, many other items. C. R. now stocks the Advance sensitive relay, can supply the new Hillcrest plastic battery case which is made to hold 8 pencils side by side, two 22½ V. B's and four pencils, or any equivalent combination that fits the space required by 8 pencils; sliding cover makes possible

(Continued on page 67)

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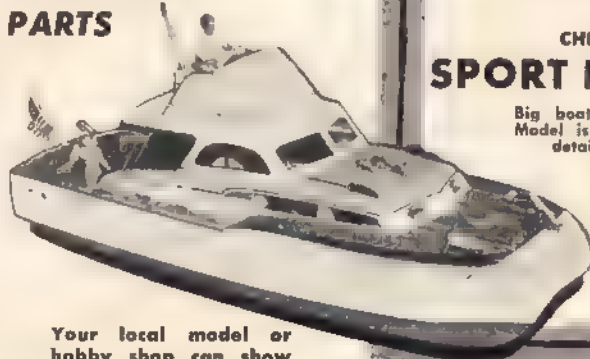
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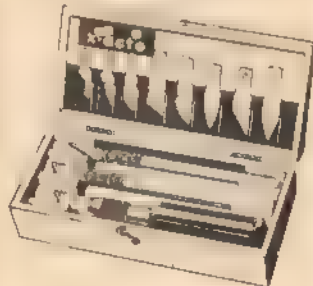


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**27  
MONTHS**

**TECH TOPICS**



**AMERICAN AIRLINES** placed an order for the first U. S. to-be-built commercial turboprop airliners. Contract is for 35 Lockheed Electras (sketch above). Airplane will be powered by four Allison T-56 engines of 3750 hp; each will have capacity for 64 passengers and 4000 lbs. of cargo and mail. Wingspan will be 95 ft., overall length 101.3 ft. Gross take-off weight 98,500 lbs., including 4,178 gallons of fuel. Equipment to include weather-avoidance radar. Cruising speed in excess of 400 mph. Delivery to begin in late 1958.

**EVERY MINUTE** that it is in flight a fighter plane takes in 132,000 cubic feet of air through the air intake of its jet engine, equivalent to a 55-room house. . . . Canada's Department of Land and Forests has been successfully fighting forest fires by wetting down areas of conflagration with water from aircraft. Two methods are used, one by dropping special Latex-lined paper bags containing 9 gallons of water on fires, the other by squirting from hose out of helicopters which carry their own water supply and pumps. . . . In 27 years of building planes, Piper Aircraft Corp. has delivered more than 40,000 aircraft. Biggest production of any single model was the famous Cub powered with 40 to 65 hp engines. Of these 14,125 were manufactured for civilian use and 5673 for military services.

**AMATEUR PROSPECTING** has become one of the biggest hobbies in the U. S., the Gold Rush having been supplanted by Uranium Fever. Pick, shovel and pan have been replaced by the Geiger counter, obtainable most anywhere from \$50 to \$4,500 a piece. . . . Approximately 85% of all vacation trips in the U. S. are made by car. Average mileage per round trip is 978. . . . Famous racing pilot A. W. "Tony" Levier, chief engineering test pilot for Lockheed Aircraft Corp., appointed as Director of Flying Operations for this firm. His former position now held by another famous racing pilot Herman "Fish" Salmon.

. . . Canada's first production helicopter, the Doman-Fleet LZ-5, has successfully passed flight tests and is expected to be soon in production.

**PAN AMERICAN WORLD AIRWAYS** won National Safety Council's Aviation Safety Award for flying over 5 billion miles without a single fatality to passengers or crews. . . . Experiments by Fisher Body engineers reveal that if a car with a white top and a car with a black top are parked side-by-side in the sun, the lighter-topped car will remain 15 degrees cooler inside. . . . Sextant for celestial navigation which automatically sights and tracks the sun during the day and the stars at night developed by Kollsman Instrument Co. Instrument greatly simplifies navigator's job and reduces possibility of human error. . . . Captain Lloyd D. Reinhardt of American Airlines was awarded Air Force Scroll of Appreciation for safely guiding to a landing a T-33 jet trainer when its pilot experienced radio failure which left him above a heavy overcast without radio navigation facilities. Sighting Capt. Reinhardt's Convair, the jet pilot flew alongside the airliner, signaling by hand his predicament. Reinhardt led the T-33 to a safe landing at La Guardia Field.

**CONVERTED** surplus searchlights used by Convair as solar furnaces for high-temperature testing of materials, such as metals, plastics, ceramics, etc. 60-inch searchlight mirrors concentrate sun rays into a spot smaller than a dime, producing temperature in excess of 7000° F. . . . Lockheed's latest Super Constellation, the 1649G, has a range of 6500 miles, enabling it to fly non-stop from New York to Rome. Powered by four 3400 hp Wright turbo compound engines, it cruises at 350 mph. . . . Congress investigating possibility of exempting engineers from military draft. . . . Oldest "passenger" carried by an airline was a human skull estimated to be 7,000 years old. . . . Survey by Civil Aeronautics Administration shows that California leads all other States with 40,707

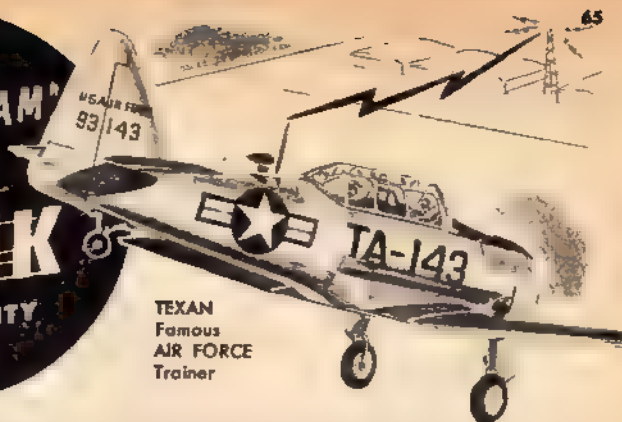
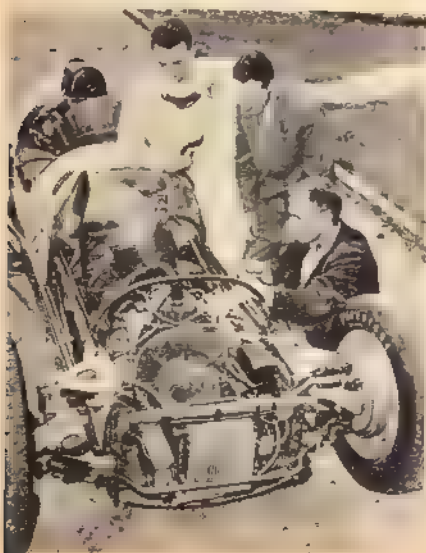
OCTOBER, 1955

active pilots; ranking second is Texas with 20,202, and third New York with 17,685.

FOUR REPUBLIC F-84G Thunderjets flew non-stop from Tokyo to Australia, refueling three times in the air. Time for the 4850-mile flight was just over 12 hours. . . . Although octane rating of automotive gasoline is as high as that of aviation fuels for lightplanes, its use in an airplane is not recommended. Reason: car gas has vapor pressure between 10 and 13 psi, while that of aviation gas is 5 to 7. Plane's fuel system subject to vapor lock due to higher V.P., especially at altitude when using auto gas. . . . Republic Aviation Corp. installed Nylon crash barriers on its runways to catch its jet fighters in the event of an overshoot. Grumman has been operating arrester wire device for the same purpose for several years. . . . Air Force will operate two target drone squadrons using the Ryan Q-2A Firebees.

AN OIL FILTER will remove a pound or more of dirt and sludge from oil in a car during 5,000 miles of driving. . . . The Navy decided, instead of purchasing target drones, to use converted USAF Republic F-84 Thunderjets. . . . Convair's Intercontinental Ballistic Missile "Atlas" will probably have a range of 5,000 miles attained by rising to an altitude of around 800 miles. Thrust to be provided by two-stage rocket. . . . Link Aviation developed flight simulator for supersonic flight. It will be used by the Air Force to train pilots of the supersonic Convair F-102 delta interceptor. . . . World's largest military cargo transport, Convair C-99, still in active service, averaging nearly 135 hours of flying time per month since 1951. Its latest assignment: to airlift 300,000 lbs. of priority cargo to Keflavik, Iceland, from Dover, Del.

AIRMEN of famed Hobby Shop of Offutt AFB, Nebr., built a racing car powered by Boeing turbine engine (photo below). Main cog of the project was S/Sgt. John B. Davis, shown pointing out car's salient features to Raymond G. Firestone whose firm, Firestone Tire & Rubber Co., will use the racer to experiment with high speed tires.



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Trainer

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Another NEW Hawk Model. The famous Texan, trainer of more pilots than any other plane. Molded in sleek silver; complete with landing gear, colorful decals, and perfect fitting parts of top grade plastic. Colorful picture gallery carton.

Complete Kit Catalog No. 610 **50¢**

## NEW HAWK "SNJ"



Molded in Yellow, this new colorful kit is perfect in every detail. Complete kit includes Hawk's new picture gallery box, ready to hang right on the wall. Landing gear, canopy decals, and all of the necessary parts to assemble a perfect model.

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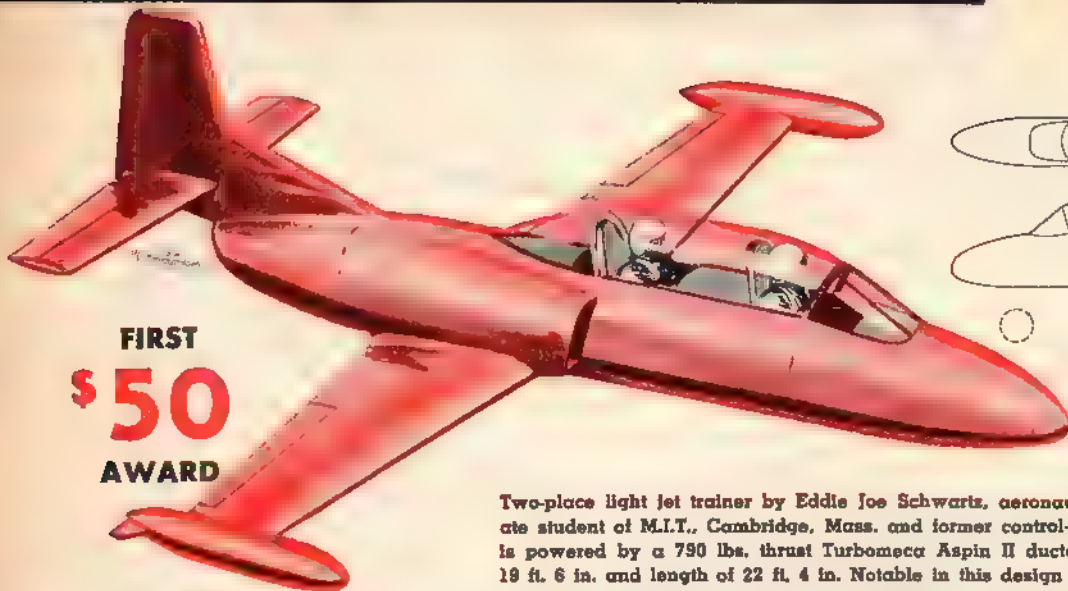
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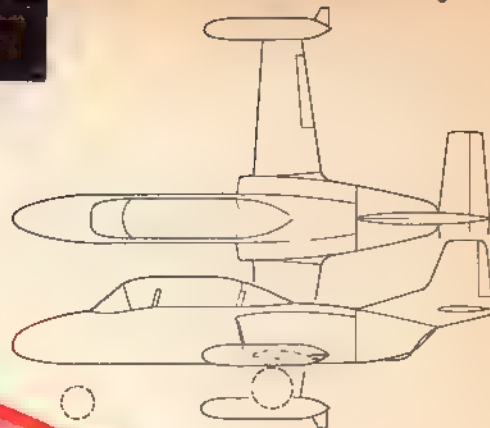


# AIRCRAFT DESIGN COMPETITION



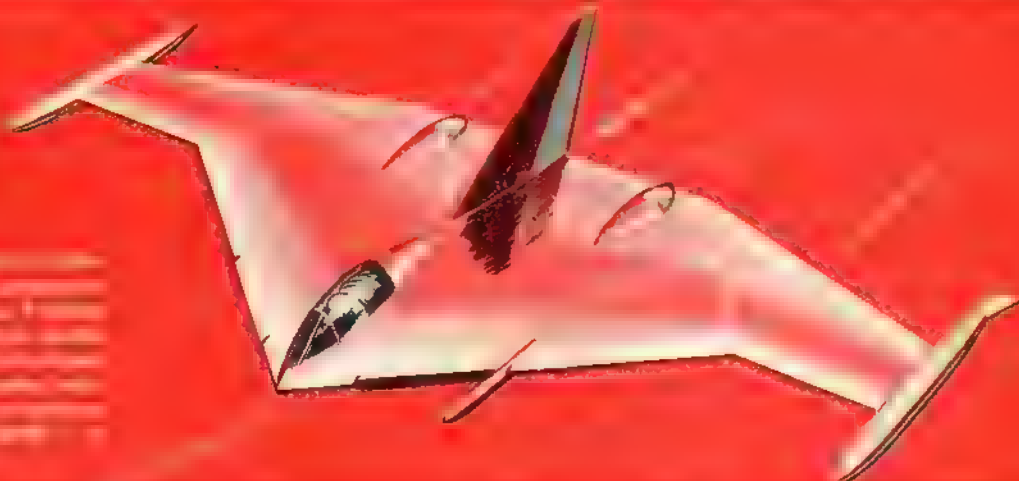
**FIRST**  
**\$50**  
**AWARD**

Two-place light jet trainer by Eddie Joe Schwartz, aeronautical engineering post graduate student of M.I.T., Cambridge, Mass. and former control-line speed flyer. The airplane is powered by a 790 lbs. thrust Turbomeca Aspin II ducted-fan engine. Has a span of 19 ft. 6 in. and length of 22 ft. 4 in. Notable in this design is the excellent visibility from both front and rear seats due to the rearward location of the wing.



**SECOND**

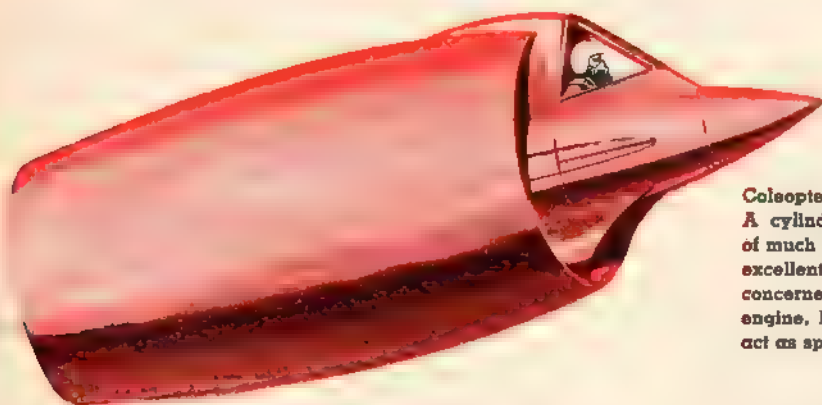
**\$25**  
**AWARD**



**THIRD**

**\$10**  
**AWARD**

Coleopter fighter by Donald C. T. Lee, of Holland, Mich. A cylindrical wing aircraft which presently is subject of much discussion and research, is said to possess some excellent characteristics, as far as speed and power are concerned. Lee's design is powered by a 400 lb. thrust jet engine, has split control surfaces in base of cylinder to act as spoilers. To be carried by bomber as escort fighter.



Rules governing this "aircraft of the future" competition are as follows: Three-view sketches of the envisioned aircraft will be required. These should be not less than 8½ x 11 inches for the entire three views. Give sketches of the complete airplane or space craft in three-quarter front and rear positions. Photos of a model of the proposed design may be included: Information on the powerplant(s), estimated performance, dimensions, and explanations of any unusual features are required. Data as to age, occupation or schooling of the entrant will be welcomed by the

editors and judges. The design may be of any type; space craft, commercial, military planes (fighters, bombers, troop transports), planes for the private flyer and sporting or racing planes. The entry each month judged the most practical or of the greatest significance will receive an award of \$50; \$25 for second place and \$10 for third. Mail entries to Aircraft Design Competition, c/o Air Trails HOBBIES for Young Men, 304 E. 45th St., New York 17, N. Y. The editors regret they cannot enter into any correspondence or return any submissions.

Fly safer and easier with

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FOR BEGINNER OR EXPERT

Using your simple single channel radio without changes you can have your choice of single or multiple controls, selective to your command. Install one in your model now and use less batteries at a lighter weight! There are no linkage or rubber band problems, those worries are gone forever with  $\frac{1}{16}$  lb. torque, motor driven "Multi-Servos"

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**4 GREAT MODELS, ONE FOR EVERY R/C NEED!****MODEL 2PN . . . \$11.95**

Two positions with an automatic neutral, for single control operation.

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Two positions with an automatic neutral, plus a 2nd actuator circuit added.

**MODEL 2P2N . . . \$11.95**

Two positions with two neutrals, one separately or with 3PN for second control.

**MODEL 3P . . . \$10.95**

Three positions without an automatic neutral, for auxiliary controls.

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WILLIAMSVILLE, N. Y.

**Complete**  
**\$24.95**

**NEW! MODEL 5PN****ESPECIALLY FOR BOATS!**

A complete actuator unit that provides selective steering, forward speed, reverse speed, and power shut off for electric motor powered vehicles. Only a simple single channel radio is required for operation.

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**LEARN WITH THE "ALL-AMERICAN" TEAM****All American Jr****BASIC TRAINER****\$1.75****All American Jr****STUNT TRAINER****\$2.50****"All American"****STUNT MODEL****\$4.95****All American Sr****CONTEST STUNT****\$5.95**

Every Member of the Team features "Asymmetrical Stability", the Sensational means of obtaining a Cleaner, Lighter Model of Superior performance. All kits are completely pre-fubbed from the finest HAND PICKED materials, plans are FULL SIZE and a formed Dural Gear is included.

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**LIVE WIRE "KITTEEN"**  
FOR R/C SPORT FLYING....

$\frac{1}{2}$ A  
ENGINES

Developed for use with the new compact light weight R/C units the "Kitten" takes every advantage of this fine equipment. The "Kitten" is one model that can be flown in restricted areas, a football field is large enough! The kit is unusually complete and includes special R/C hardware, dural gear and wheels. Its outstanding design gives the ruggedness and maneuverability for all types of flying, assemble it quickly and enjoy many fine flights! . . .

**(3.95)** $\frac{1}{2}$ A**LIVE WIRE "CLIPPER"**

FOR PAA &amp; FREE FLIGHT EVENTS

Beginners in free-flight or experts looking for an easy to handle design will find this realistic looking model ideal for them. Use it for PAA, local and regular free flight events. . . .

**(2.95)**

**"Infant WAGON"**

The ready to assemble ALL BALSA stunt model for all  $\frac{1}{4}$ A engines. It has been accepted as one of the most efficient rugged and maneuverable models in its class by those who should know!

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PRODUCTS OF  
THE deBOLT MODEL ENGINEERING CO.  
WILLIAMSVILLE, N. Y.

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(Continued from page 63)  
mounting area for relays or even a receiver. Price is 95c.

Several printed circuit kits will be marketed by Centre Circuits (Box 165, State College, Pa.), to enable home builder to produce his own receivers, etc. with this form of assembly. Kit of most interest to the R/C fraternity is No. 201, which includes four 4 x 6" pieces of metal coated base material, special printed-circuit 7-pin sockets, eyelets, etching material and instructions. No. 101 Professional kit produces neater results, but requires that the circuit plates be laid out four times normal size, then reduced photographically. This concern is prepared to estimate on quantity etched wiring, offers special prices on quantity work, to recognized AMA or ARRL clubs.

Multi-channel reed receivers offered by Badaco Mfg. Co. (2801 Penick St.,

Shreveport La.) in 3 and 5-reed styles. Either style comes in aluminum case 3 x 3 x 2 $\frac{1}{4}$ ", and the 5-reed unit weighs 10 $\frac{1}{2}$  oz. The 5-reed receivers sell for \$79.95 and the necessary control box will cost about \$22.00. Latter is attached to the regular Badaco #180T tone transmitter. Receivers utilize two tubes, have individually shock-mounted Neomatic relays and shock-mounted reed units. No-signal current is .9 ma.—goes to 5 ma. on signal.

Several new kits announced in latest catalog supplement sheet from Ace Radio Control (Box 301, Higginsville, Mo.). They include basic kit for the Gazistat which includes everything but tube, transistor and relay, sells for \$3.95; complete kit of all parts, with Jaico relay is \$14.95. Other new kits include transistorized Mini-Mac, battery rejuvenator, etc. Ace carries Austin battery boxes which are made in sizes for pencils,

medium cells and for two 22 $\frac{1}{2}$  V. B batteries. Ace's dual-diode receiver will cost \$14.95 complete with tubes and relay, weighs less than 2 oz. with protective balsa case.

Illustrated data sheet on Bramco receivers, transmitters, servos, reed units and throttles may be had gratis from Bramco Products, 1717 S. Main St., Pleasant Ridge, Mich. Data on kits for the various units is also included.

Wilson's of Cleveland (425 Lakeside Ave., N.W., Cleveland 13, Ohio) is having sale of odd lots of motors, gears, springs, other small parts useful to the hobbyist. Prices are very low; sheet describing parts available may be had free from concern at above address.

**Next Issue: More R/C**



# AIR TRAILS HOBBIES FOR YOUNG MEN FULL SIZE PLANS

Group No. 1055 50c

ENCLOSE COIN OR MONEY ORDER

"JERSEY JESTER" competition free flight plane model by Frank Ehling; takes 1/8 cu. in. engines. Spans 50"; over-all length 43".

"MERRIMAC" working waterline-scale model boat for electric motor power. Length, 34"; beam, 6".

"MONITOR" working waterline-scale model boat for glow plug or diesel engine. Length 44"; beam, 11".

"TRI-YH" rubber powered three-winger is something the young fry will appreciate. Length, 19 1/2"; span, 9".

"TENNIE GENIE" by Roy L. Clough Jr. high performance Half A stunt control line model plane that can hold its own with much larger craft. Spans 16 1/4"; length, 14 1/2".

Available Again...

Group No. 253-R 50c

ENCLOSE COIN OR MONEY ORDER

**STUKA STUNT** model by Don Still. This is the remarkable scale-like stuntster that took National Meet honors then went on to win the 1953 Plymouth International Stunt Championship. Spans 47 inches; fuselage is 31 inches long. For Fox 29 engine or equivalent.

**DOUGLAS B-26 INVADER** twin-engine control line flying scale by Lt. Dick Atkins, Jr., USAF. This beautiful ship spans 52 inches; has 35 inch fuselage. Power is two K&B 29's or equal. (Don't confuse this with the obsolete Martin B-26 Marauder.) Squarish fuselage makes for easier building.

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Model 185K, 20 gauge \$29.95

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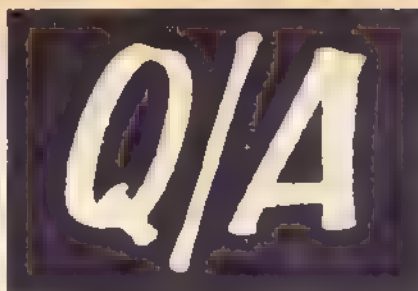
(\*All \$1 more west of Rockies)

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## What's your question? You ask 'em and ATH's Experts Advisory Board will do its best to supply the answers

**Glow Plug Conversion . . .** I would like to know if there is any way that I can convert my .09 McCoy Diesel to glow plug.

*Don Burris, San Diego, Calif.*

• Unless you are a first-class machinist capable of machining a new cylinder and head there is no way to make this conversion.

**AF's "PBX"?** . . . My buddy and I had an argument. I say that the Air Force has used the Consolidated PBX amphibian, he claims that I am wrong and that the Air Force has only land planes.

*Roger Barton, Los Angeles, Calif.*

• You are correct. The Air Force Consolidated amphibian was designated OA-10A.



In Air Force it was OA-10A, not PBX.

**Personal Sportscar . . .** It has always been my ambition to build a sportscar of my own from standard auto parts when I grow up. Have you any pictures of such a "special"?

*Bud Johnson, Albany, N. Y.*

• Here you are, Bud: the Rogue



ATH's Tech Ed Alex Dawydoff with the famous Rogue "original."

Chassis was from a Dodge, body consisted of four Oldsmobile fenders and formed sheet metal, Plymouth grille, Kaiser-Frazer bumpers, Cord windshield and instrument panel. Engine was a late model Cadillac, modified to deliver around 200 hp, hydramatic transmission and dual ratio rear end. Empty weight of the car, 2850 lbs.

**Change in Cannon?** . . . I'm a regular reader of Air Trails and enjoy your articles on airplane modeling very much. I have an Ignition Cannon .358. I would like to know if this engine is suitable for stunt flying if run on ignition. Would this engine be suitable if converted to glow plug? I was told that it wouldn't last too long if converted to G.P. Is that true?

*Anthony Nero, Hudson, N. Y.*

• Your Cannon engine can be used for stunt flying. However, the extra weight of the necessary ignition system may handicap the model's performance. By experimenting with different glow plugs and fuels we believe that this engine will run quite satisfactorily with the right combination. There is no basis to assume that an engine will not "last too long" if converted to glow plug operation.



Every wheel worked for Mr. Milliken!

**Four-wheeled sports job . . .** I heard that a four-wheel-drive racing car participated in one of the Watkins Glen sportscar races. Any dope?

*Jack Levy, Miami, Fla.*

• A four-wheel-drive racing car did run in a couple of Watkins Glen events, driven by its designer William F. Milliken, head of Flight Research Department, Cornell Aeronautical Laboratory. The car was powered by a V-8 air-cooled German Steyer engine.

**Hot Air Take Off . . .** Does it take longer for a plane to get airborne on a hot day?

*Joe Cannon, Augusta, Me.*

• Yes, because on a hot day air is thinner and a plane must run faster to get lift, than on a cool day.

Endurance . . . What was the longest flight made, who did it and when?

*J. H. Doyle, N. Y. C.*

● Longest flight was made in spring of 1949 by two California pilots, Bill Barris and Dick Riedel, who remained aloft in their Aeronca Sedan 1008 hours, 1 min. and 50 sec. (42 days). Refueling was done by picking up cans of gasoline from a speeding car.

Short Runs . . . I have a .29 that is giving me trouble. It will run for



U.S.A.P. Honor guard for record Aeronca.

approx. 1½ min. at a leaned-out setting, then it loses rpm's and stops if not richened a bit. I would like to know if you think it isn't broken in enough, or will you give me some suggestions on what may be wrong?

*Mike Merchant, Downers Grove, Ill.*

● It would seem from your letter that your .29 still isn't broken in sufficiently and is overheating. Sounds as if you are running the engine indoors. We strongly recommend that you take it outdoors whenever you run it.

Twin Kellett . . . Did Kellett make a helicopter that had two engines in nacelles one on each side of the fuselage?

*Dorothy Lamb, Akron, O.*

● Yes. The Kellett XR10. It was powered by two Pratt & Whitney 450



Kellett copter had two engines.

hp radial engines located in nacelles and each driving a rotor by means of an external shaft.

Hand-Powered Starters . . . Do you have any specifications for a "hand-grinder" type of starter for model engines—one not needing battery?

*Alex Dorfmeister, Baltimore, Md.*

● Illustrated is a geared engine starter worked out by George Rathgeber of Jersey City, N. J. Flywheel is used to start cars, rubber hose fits spinners to start planes.

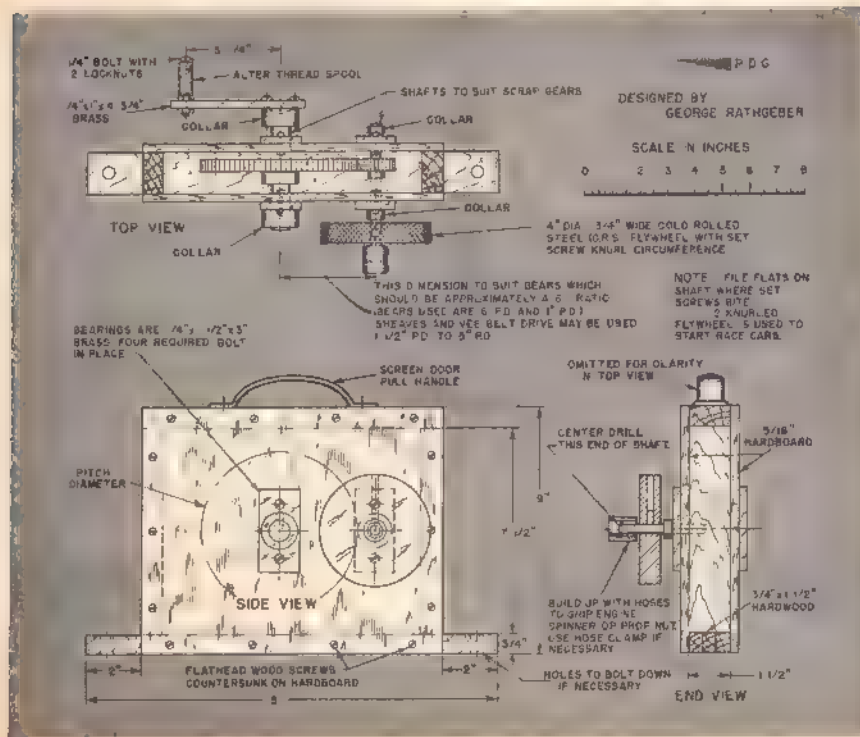
B-47 Count . . . How many B-47 bombers does the Air Force have?

*Mike Smith, Butte, Mont.*

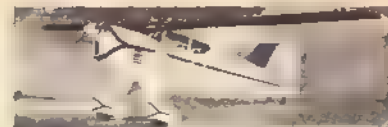
● Although exact figures on number of B-47s are not available, around 1500 are in service.



Geared engine starter works well.



## REARWIN GAS MODEL



36" Span. Radio or free flight. A new scale beauty. Supersets features, plastic spinner, carved prop, rubber tired wheels, concealed motor, and ready cut wing ribs. Uses 14 to .33 motor.

Const. set less motor **\$12.50**

## OTHER GAS MODELS

Vought F2G Gas Model.....\$7.00  
48" Curtiss P40F Set.....9.00

## REPUBLIC P47D GAS MODEL



35 1/2" span, 1/4" scale Length 30 1/4". One-piece moulded, clear plexiglas cockpit enclosure, 2 1/4" scale alum. disk rubber wheels, Body planking full size plus 1 sea B or C motor.

Set **\$5.95**

## 9' TAYLOR CRAFT GAS MODEL



9 foot Span. Can use Radio control. Set has 36 ready cut wing ribs cut plywood body formers, 14" carved prop. Radio Control book, 2 full size plans printed balsa silkspan, etc. Uses "C" type motor, single, twin, or 4 cyl. motor. Set **\$17.50**

without motor or wheels postpaid ... Extra pair of 4 1/4" airwheels, \$2.50

## NORTH AMERICAN B-25 GAS



67" Span. 1" Scale. Free flight or radio control. Set has two 4 1/4" alum. cowls, scale rubber tired Veco wheels, planked type body, full size drawing, etc. Model uses two "19" or "28" motors. Const. Set less motors **\$20.00**

Curtiss F11C4 N. American B-25



33" span, 1" scale, Const. 33 1/2" span, 1 1/2" scale, Const. Rubber driven **\$4.50** set. Rubber driven **\$4.00**

## Elf 4-Cyl. Gas Motor

## Graham-F3F1



32" span, 1" scale, Const. Elf 1-8 h.p. 4 1/4" wide. set. Rubber driven **\$4.00** Price **\$48.50**

## BOEING PT17 GAS



45" Span. Can use B or C type motor. U control. Set has scale rubber wheels and all spec parts ready cut wing ribs, tail wheel unit **\$9.95** and wheel Const. set

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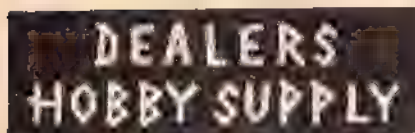
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**Octura Models**  
Box 536-HD Park Ridge, Ill.

## Compact-Pulser

(Continued from page 37)

just reverse the leads from the chassis to R3 and R10. The pulse rate operation can be reversed by interchanging the leads to the outer terminals of R2.

Battery life depends on how long the pulser is used at each flying session, of course, but we have picked batteries that will give plenty of flights or cruises. Total B drain averages 4.5 ma., and you should get at least 80 hours from the high voltage battery. The filaments posed more of a problem, which we solved by using two mercury cells in parallel. These units put out about 1.25 V. (which is just right for the 1AG4's) and will also give a life of around 80 hours. You can also use regular pencils in the same battery holder; standard cells will give somewhere around 4 hours use, while hearing aid pencils (Eveready No. 1015 or equivalent) will run around 18 hours. The specified mercury cells cost about 60c each; they are carried by radio concerns and shops in many communities that carry hearing aid batteries; we feel the higher cost is well justified in view of the long life they afford.

To avoid possible complications from pickup of RF over the cable connecting the pulser to the transmitter, we used a shielded cable, with shield grounded to the pulser case. A piece of heavy fiber insulation paper was cemented inside the part of the box that fits over the works, to prevent possible shorts from the chassis to ground.

If you want to change the pulse range, do it by substituting different values for C1 and C2. Smaller capacity here will give higher pulse rates, of course. If you find the pulses are lopsided when the control stick is centered, you may have all the "off-tolerance" parts on one side of the circuit. Don't forget that this multi-vibrator is supposed to be a balanced circuit. Since we are using regular commercial parts, most of which have a tolerance of at least 20%, it is possible to pile all the "high" units up on one tube, and the resulting pulses will thus be lopsided. The solution is to interchange such parts as C1 and C2, or you can try adding a small amount of capacity to one or the other to even things up.

We have not given any dimensions for the holes to be cut in the case, since any substitution of parts will alter mounting requirements. The photos show where the parts are mounted, however. The chassis is, of course, completely wired

up and the tubes installed, before it is attached to the bottom of A. Before this is done, all wiring of parts attached to the case should be done, and the relay contacts set (spring tension can be adjusted after everything is fastened in place).

A large hole is needed in top of the case for the control lever. Since dirt and other foreign matter could enter here, the hole is covered with a "boot" of rubber, cut from a thin rubber glove. The hole itself is 1 1/2" square, and an aluminum frame was cut from 1/16" thick stock to hold the rubber in place; the rubber was first attached to the top of the case with rubber cement. If heavier rubber were used here, and stretched a bit, it would probably take the place of the centering spring.

Well, there is your dual proportional pulser! For those who want to fly with rudder only, a lot of the complication of the control stick can be omitted, and R1 might be mounted on top of the case, with a bar-type knob. But while you are making it, you might as well go all the way, then you can try the dual system described in April 1955 issue. And for a very simple dual system, look up page 10, Feb. 1953 issue of A.T., lower right corner—it works!

Parts Required: V1 and V2—Raytheon 1AG4; R1—1 megohm, IRC type PQ11-137; R2—100K, IRC PQ11-126; R3 and R10—dual 250K, IRC Q11-130 and M11-130 attached together. All fixed resistors 1/2 W carbon, 5% preferred; R4—8.2K, RS mmd R8—27K, R7—10K, R6 and R9—51K. C1 and C2—25 mf., Aerovox type P82; C3—1 mf., same. Relay—Sigma 4F, 2K. Tube sockets—sub-miniature 3-prong flat screw-mount type, Polk's. A battery—two Mallory RM502 in parallel. B battery—Eveready #455 with connector. A battery holder—Acme #8. SW1—DPST slide switch; SW2—normally-closed pushbutton, Grayhill #4002; SW3—normally open pushbutton, Grayhill #4001. Case—3 x 4 x 5" aluminum, ICA #29440. Two gears, 18 teeth, 48 pitch, 1/4" center hole with hub; two gears 24 teeth, 1/4" hole; Bergwald Material Co., 350 Canal St., New York, N. Y. 2-wire shielded cable and plug to fit transmitter.

For the Weapons Collector

in November "YM":

Modern U.S. Automatic Weapons

NEW!

SENSATIONAL!

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### UNIVERSAL EXHAUST THROTTLE

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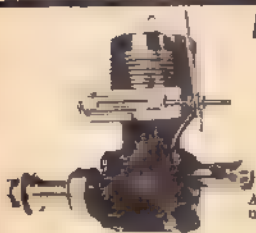
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BOMBERS. B-17 Flying Fortress (H3) B-24 Liberator (H4). Kits include Mono-Glue and Mono-Dope. Each \$4.95.



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(G10) Mustang F-51 (G9), Each 85¢. Others in series: Piper Cub (G1) Aerona (G2) Monocoupe (G3) Ercoape (G4) Boeing Kaydet (G5) Long Midget (G6) Cessna (G7) Spad (G8) Navion (G11) Hellcat (G12). Each 85 cents.



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If no dealer near you order from this address. Add 25¢ to cover packing and postage.

Want to step up your model building fun? Want to enjoy more thrills—more satisfaction—with easy, but more advanced model building? Build your next model with one of the 37 molded plastic and finished balsa combination kits or all-balsa kits offered by Monogram. They are America's favorites you know. Have been for years. They outsell all other kits in the true model building field. Start with one of the kits listed here. You'll have the time of your life.



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### You'll Need These!

Use Mono-Glue and Mono-Dope. Best for all materials including acetate plastic.

15¢



## Model Car News

(Continued from page 17)

ing of the hook which joins the bridle and cable. The thinking now is that a better method might be use of a stainless steel clevis pin setup, which has been successful on Eastern tracks.

Results of the Western Regionals: Custom Proto—1. Bart Dimattio, 138.67; 2. Ray LaBahn, 138.03; 3. Tie between W. Woodward and Al Terra, 135.95. Manufactured Proto—1. Gen. L. A. Smith, 134.52; 2. Frank Munis, 121.13; 3. Ed Baynes, 119.20. In Spur Gear, Ed Baynes, Jr. was only placer. Carl tells us that the July issue of ATH, with its race car cover and the first part of an article on Speed Tuning model cars by Bob More, made a great hit with the car gang in his area. Well, if more of the model car builders will let us know their interests, maybe we can promote more of the same. But as of this moment, we still hear regularly from only a very few racing men, despite comments from Carl Dunlavy and others to the effect that model car racing is very much on the upgrade.

One last note from Brother Dunlavy is that the Corona Club will hold another of its "Hot-Lukewarm-Cool" races, but this time the awards will be made in the proper manner. Anyhow, the first of these races was very successful, since it brought out a lot of the old cars which are not too fast, and any of these slower jobs can still win a very nice trophy for its owner.

**New Products.** A kit for the famous old Duesenberg car has been announced by

# NOW—IT'S WOW

## SETS A NEW PEAK IN PERFORMANCE

Is it fast? WOW! Is it easy to maneuver? WOW! In fact, here's a plane that leaves everyone "speechless". When you see it . . . when you fly it—all you'll be able to say is WOW! Kit made entirely of AAA grade material throughout. All die-cut midsection, ribs, etc. Mid-section and wing keyed so you can't make errors in alignment. Truly nothing else like it at or near the price. WOW!

Wing span 35 inches  
Wing area 500 sq. inches  
Weight with .35 engine 20 oz.



Only \$2.95 less engine WOW!

Compact • Easy to transport WOW!



**JUMPIN' JACK** sleek, sturdy prefabricated. What a performer! 35" spread — 23 1/2" fuselage — 8" cord Complete with exploded view drawing & instructions. Only \$2.75 less engine



**New! Jubilee** Versatile! Easy to Build! Terrific flyer! 1 pc fuselage. 2 pc. removable wings — easy to transport! Extra large wing area. Only \$3.95 less engine



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- True carburetor principle—allows engine to "cycle" always.
- Varies fuel MIXTURE—engine does not load up.
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of Medieval times—authentic replicas of famous ancient weapons. Collector's items. Actually work—range 20 to 30 feet—over 30 parts.  
KIT INCLUDES—cast gears and trigger, die-cut parts, brass pins, copper foil brazes, all brass construction, all parts cut to size. History of weapon included with each full size plan. Kits are approx. 12"x5"x3".

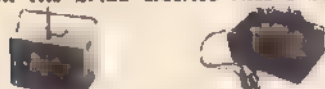


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Crystal controlled, 3 watt transmitter with a 9 volt storage battery vibrator, power supply Complete with antenna and keying switch  
MODEL 800 TRANS-MITTER \$27.50

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INSTALLATION KITS FOR ABOVE RECEIVERS  
200K ..... \$1.10  
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Stunt or Combat

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Engines: 049 Glow or Diesel  
Wing Area: 107 Sq. In.  
Wing Span: 24 Inches  
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Revell, Inc. (Venice, Calif.). There were no "standard" Duesenberg cars, of course; the buyer got just a chassis from the makers, but could have a body by any one of half a dozen famed custom builders. Revell has chosen the 265 hp Le Baron Phaeton as most representative of what was billed way back in 1929 as the "biggest, fastest and most powerful stock car the world has even known." The model is all-plastic with extra wind-shield for the back seat, spare wheels in fender wells, big outside exhaust pipes, and two figures dressed in proper Duesenberg-era fashions. The kit retails for 89¢ and finished models may be had as well.

## Model Rail Racing

(Continued from page 45)

and must be wiped off. It is, however, stronger and requires less bracing. Sheet sizes are approximately the same. A typical track is given that will fit comfortably into a hall 60 by 30 ft. in size, leaving room all round for spectators and competitors. Eight-foot sections in the two straights can be removed if necessary to fit into a smaller space.

When fitting the rails it is wise to lay them down on the surface, bending gently to the curves. A bending jig made up of wood is helpful here. The bending should be completed before rail is attached. The rail is then laid in place and a small tunnel jig slid over it, and drilled vertically, taking care that all holes are truly upright. Spacers should be one foot to 18" apart according to material employed. Suitable counter-sunk wood screws then secure the tracks, through hollow spacers. Near the starting line crescent cuts should be filed in the tracks to enable the attachments to be slid on. Cuts should be about one inch long, and about one-third through the rail.

Where a permanent outdoor track is contemplated tarmac is an excellent surface. Turf should be lifted from the site, and about four inches of tarmac laid. Half-inch doweling is then driven in wherever rail spacers are going, and left flush with surface. Procedure is then exactly the same as with hardboard tracks.

Well, there it is! The writer will be happy to give any help through the editors—at several thousands of miles range!—while any necessary parts, including affiliation to the M.R.R.A., can be obtained from Model Road Racing Cars Ltd., 29 Ashley Road, Boscombe, Bournemouth, Hants., England—which is anxious to open up markets in America, as they have in France, Belgium and Germany, where the sport is taking hold.

She's a Real Beauty!

## "The Wicked Witch"

F-86-like stunt plane

Next month in "Young Men"

Air Trails HOBBIES For Young Men

## Hobby Model World

(Continued from page 43)

ARMCA Groups.

Blank Space. We like a gimmick used by the editor of the Hamilton, Ontario, Aero-Modelling Association's "Look-Out" club bulletin. He leaves a big blank space and below it states: "Please Note, the above space contains the news you did not send in to the editor. Let's not see it vacant next month."

Hamilton's A-MA, by the way, sounds like a real goin' concern. Last financial statement showed \$148.57 in the bank and carried a notation that the club's insurance broker had increased property damage coverage by \$1,000! Maybe the extra-special activities carried on by the club have something to do with the high interest. At last report members were anticipating the annual "weiner roast." They were instructed to bring along free flight R.O.G. and R.O.W. planes, control line jobs and boats. Also on the schedule: surf board riding, water skiing, swimming and 16-mm sound movies!

'Pologies to Loyd. Keep having trouble with Winston-Salem's Hathaway. (That's in North Carolina, son.) He's very active as a model leader and contest director; only trouble is he spells his front name, Loyd. Every time we mention him, the printer sets it in type as "Lloyd." With apologies now to all the Loyds in the audience, doesn't the single-L set-up make just as much sense? Anyway, Loyd, congrats on the fine work you're doing.

Hobby Items In The News. For that great clan that always seems to be writing us about "where can I get a plan for . . ." meaning some airplane scale three-view, we direct your attention to Polk's Model Craft Hobbies' latest offering: 107 plans for \$3. As we understand it this includes 45 control line scale plans and 62 quarter-inch scale drawings. It represents a savings of \$6 over regular prices. Polk's is located at 314 Fifth Ave., New York 1, N. Y.

Nitromic Glow Fuel Laboratories made a special offer of a Spitfire glow plug and a pint of Spitzzy Nitromic Glow Fuel, a \$1.60 regular, for \$1.29. We didn't get a closing date on the deal, so you'd better check your hobby shop to determine that.

Dealers Hobby Supply Company, wholesale distributors of hobbies, crafts and toys, moved their Ottumwa, Iowa, operations to Dallas, Texas. New name for concern is Dealers Hobby Supply, Inc. President and general manager is Robert L. Hallgren; vice president is William C. Brunk; James B. Trent is secretary-treasurer and sales manager. DHS started in the hobby field in 1940; Mr. Hallgren reports that it serves hobby dealers in all of the 48 states, Puerto Rico, Alaska and several foreign countries. New address for firm is 2009 Farington St., Dallas. Distribution throughout central and eastern U.S. will be handled by Dealers Hobby Supply, 506 E. 6th St., Des Moines, Iowa.

More than 50,000 entries were received by Monogram Models in its Cadillac model car contest which closed July 31. First prize is a \$5,000 Cadillac Coupe de Ville (the real thing, not a model!); nine additional winners will share in \$2,200 worth of U.S. Savings Bonds. Announcement of winners was to be made by the folks at Monogram on September 1. We'll carry lucky modelers' names.

Francisco Laboratories, 3015 Glendale

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- Electric Motor
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- 42 Pieces



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SEA WITCH \$9.95**

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Blvd., Los Angeles 39, Calif., has an interesting booklet, "Contest Fuel at Its Best," which contains considerable data on fuels in general and FL fuels in particular. Included are speed conversion tables and directions for setting up your own humidity testing apparatus.

Slick new catalog folder by Dumas Products, 2114 S. Alvernon Way (P.O. Box 6069), Tucson, Ariz., is yours for

## Next Issue: Glow Plug Powered Sports Car

the asking. Nineteen model boats are illustrated and details included on all. Models are designated for proper type of motive power and those suitable for radio control are so labeled.

Mr. and Mrs. Norman Bent operate a hobby shop in Green Bay, Wisc., that sounds like a modeler's paradise. In addition to a full line of hobby-model kits and materials, we learn from an interesting story in the Green Bay "Press Gazette" that the Bents have a full line of big-boat engines, tricycles, bicycles and toys. That should be enough to satisfy the younger "young men," the active young men, and the somewhat older "young men."

Best of all is a description by the Mrs. of Norman's own modeling activity. "He flies gas model planes, operates power model boats and is active in radio control," she writes. "He has a free flight with 9-foot span that he flies in winter

(Continued on page 87)

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**CLEAR PLASTIC TUBING**

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- Look For this Cover Featuring a Hobby Shop Next Month!



The change-over in title from "Air Trails Hobbies For Young Men" to "Young Men" is the final step in a three-phase program conducted by Street & Smith Publications, Inc., to broaden the magazine into a publication that will have special appeal to all mechanically-minded teenagers. This emphasis on constructive hobbies for the young men of America is an important part of Street & Smith's 100th Anniversary year. Thus 80 years after it printed a special magazine for young fellows titled "The Boys of the World" (it carried the descriptive sub-heading: "A story paper for the rising generation"), Street & Smith demonstrates its leadership in the general youth field with a "Service" magazine for the engineering and hobby-minded model builders of America.

# IN THIS NEW "YOUNG MEN" MAGAZINE . . .

## MODEL PLANES?

**YES!** "YOUNG MEN" will continue the "ATHFYM" policy of presenting the world's best in scale model, radio control and contest planes!

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**YES!** Lots of famous working scale boats-in-miniature coming your way — plus sport and racing craft, both powered and sail!

## MODEL CARS?

**YES!** Maybe you've noted the recent nationwide increase in interest in this hobby; that's generally credited to ATHFYM's editorial support. More and more of the same in future issues!

## PHOTO PRIZES?

**YES!** Keep your camera handy — maybe you'll be the one to make that special prize-winning shot in the new "YOUNG MEN" hobby-model photo competition! Valuable awards!

## ADVANCE DOPE ON CAREERS AND JOB PROSPECTS?

**YES!** Be smart — read our stories on engineering and technical careers. Some fine valuable reports coming up including "Your Future in the Electronics Industry."

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**MONEY SAVING OFFER!  
BIG NEWS  
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**For a Limited Time . . .  
Until October 15, 1955  
You Can Subscribe to  
"YOUNG MEN" for  
only \$2.50!!!**

Yes, sir, this is one of those infrequent opportunities that comes your way to subscribe to the biggest and best hobby-model magazine, "YOUNG MEN," at a very substantial saving over what the publication would cost you at the newsstand.\*

For instance, 12 copies at 35¢ apiece comes to \$4.20 a year if purchased separately. But you can subscribe right now (if you act fast!) for only \$2.50 — a clear savings of \$1.70 over single-copy buying.

And here's news for our present subscribers: If your subscription is about to expire you can renew at this very special rate of \$2.50 for the next 12 issues of "Young Men" — but you must act quickly to take advantage of the limited-time offer. And if you presently have a subscription, you can extend that for an extra 12 months!

**SPLendid SUGGESTION:** If you've got a birthday coming up why not show this announcement to Dad or your favorite Uncle and tell him why you'd be so appreciative of a gift subscription to "Young Men." Mention: Here's groundwork for your technical or engineering career.

One further thought for all adult readers . . . why not do some bright young fellow a favor by making certain that he receives this specially-edited magazine every month for the next year. You can enter as many subscriptions as you want at this very low rate — providing you act before expiration date.

Remember the offer: \$2.50 for a full year of "Young Men." Remember the time factor: You must get your orders in by October 15, 1955 to qualify for this extra low rate.

\*Offer good only in U. S. and Possessions.

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## GEM RC RELAY

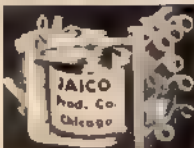
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■ Jim Walker, promoter of U-Control and the man directly responsible for so many fine products designed to add to the enjoyment of control-line flying, has now added an engine to his line of kits and accessories.

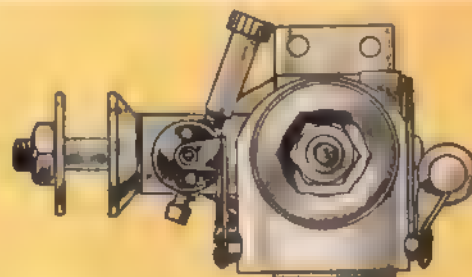
The Firecracker engine with its Remote Control Throttle is the first one equipped with so simple yet foolproof a device to control engine speed in flight. For the first time the control-line "Pilot" can vary the engine speed by simply squeezing a small rubber bulb that he attaches to his control handle. No relays or electrical devices of any sort are necessary. Of even greater importance is the fact that the Firecracker is not just a two-speed engine. Any speed—that's right—any speed within the operating range of the engine is literally at the "Pilot's" fingertips. Throttle control is absolutely fantastic. The engine responds instantaneously to the slightest pressure on the bulb.

The results of this revolutionary device are attained through the combined action of a flapper valve on the venturi

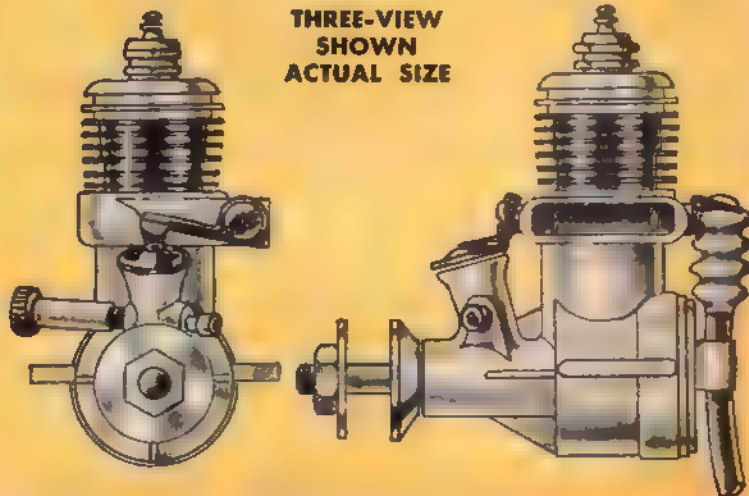
(air intake) and a butterfly valve in the exhaust pipe. Both valves are operated by a small gum-rubber balloon known as an Actuator. This Actuator is connected to the air line tubing which in turn is connected to the rubber Throttle Bulb on the control handle.

In operation, you find that when you gently squeeze the Throttle Bulb, the flapper valve on the venturi opens and the butterfly valve in the exhaust pipe rotates to an open position. Releasing the pressure on the bulb returns the control valves to the closed position. Thus by regulating bulb pressure, the control valves can be held in any position from fully closed (slow speed) to fully open (high speed). During the running tests, a speed differential of about 11,000 rpm was attained quite consistently.

From the foregoing it is quite evident that the Firecracker was designed as a powerplant for control-line models. It comes packaged in a clear plastic case which can easily double as a neat see-through spare parts kit for carrying



THREE-VIEW  
SHOWN  
ACTUAL SIZE



practically all the spares that are necessary for a day's flying. Included with the engine and Throttle Control is 32 feet of clear plastic air-line tubing.

The Firecracker engine is exceptionally clean both in appearance and in operation. It is both light and compact. Scale models, beauty event entries or any control line model with an engine cowling will perform better and last longer with the Firecracker, due to its exhaust stack. Damage from excessive exhaust heat and oil are greatly minimized, as these can be directed outside the cowl.

Design-wise, the Firecracker is a two-cycle, rotary valve glow plug engine. It features 360 degree intake and exhaust ports. It displaces .065 cu. in. with a .436 bore and a .437 stroke, which places it in Class A.

The hollow crankshaft is steel, machined in one piece, and employs a round rotary valve for fuel induction. It is hardened and ground to a smooth finish on all bearing surfaces. The connecting rod is also of hardened steel and is round in cross-section. The steel piston features a slightly domed top and is of the ball and socket design, thereby eliminating the necessity for a wrist pin. A steel snap ring is used to retain the ball end of the connecting rod in the piston socket. The cylinder is machined from steel and is threaded into the main aluminum crankcase casting. It is threaded internally at the top to receive the aluminum head. An aluminum gasket is used between the cylinder and head to insure good heat transfer. The rear crankcase cover is turned aluminum and threads into the crankcase. The needle valve is angled rearward, allowing additional finger space for making necessary adjustments. The needle valve body is brass. The needle itself is of the short stubby type and of steel. An aluminum drive washer, knurled to prevent propeller slippage, is press-fitted to the propeller shaft which is also knurled to prevent the drive washer from slipping. A stamped aluminum propeller of 5" dia. is also supplied with the engine.

Running tests were conducted using O&R AA fuel. The Firecracker as received appeared to be quite limber and required only 15 minutes of running-in to reach peak rpm. Needle valve adjustment is quite broad and therefore not critical.

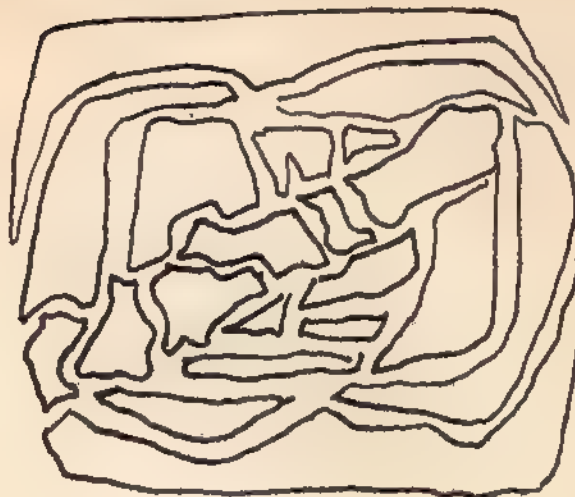
We found starts could be made equally fast whether priming directly into the head through the exhaust ports or by priming into the venturi. However, as the Firecracker has quite a bit of base compression, choking with as little as one flip resulted in an excessive fuel charge and delayed starts considerably. Incidentally, good base compression is very important to the steady running of an engine that is to be used for control-line stunting.

With a 6/3 wood propeller, high speed was a very consistent 15,000 rpm. The lowest speed recorded was a mere 4,500 rpm. With the metal propeller supplied, high speed increased to 15,800 rpm. Low speed remained about the same, 4,500 rpm.

Throughout the test period the Firecracker performed smoothly and steadily with a very low vibration factor. Speed control was really amazing, and not once during the test did the engine quit when changing from high to low speed, whether it was done gradually or instantaneously.

So chalk up another first for Jim Walker and his Firecracker engine!

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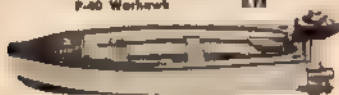
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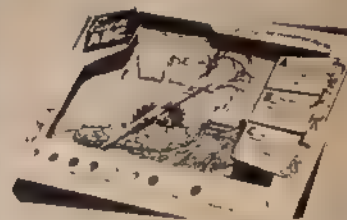
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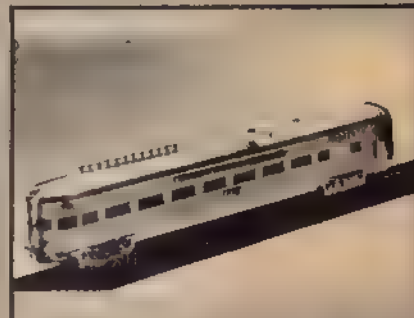
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# HOBBIES'

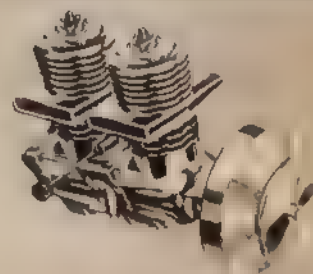
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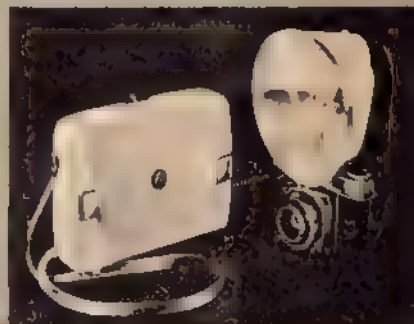
Another in series of K&B-Allyn twin glow plug engines is Mar Fury 0.12 cu. in. (total) displacement marine twin K&B-A (No. 408). Incorporates special drive take-off at rear which permits free access to fly wheel. Thus, with no drive-shaft nor mounting bracket in the way it is easy and quick to start. Lists for \$10.95. Same design and unit construction as Sky Fury Twin.



For shooters who demand high accuracy in a "plinking" rifle, O. F. Mossberg & Sons (New Haven, Conn.) have new .22 caliber model 140K "Sporter." Lightweight (5½ lbs.), it has many features found in competition rifles; cheek piece, long 24½" barrel, molded finger grips, adjustable trigger pull, grooved trigger. 7-shot clip magazine. \$24.95. West of Rockies, \$1 more.



**Low-cost FR Electronic Flash unit** needs only 4 photoflash batteries; weighs 2½ lbs. Provides guide no. of 50 with daylight type Kodachrome; 80-100 for Ektachrome; 220 for Super XX. Unit is two parts, power pack and flash head, permanently wired together. Power pack carried with shoulder strap. Uses GE flash-tube. \$54.95. Literature available from FR Corp., 951 Brook Ave., NYC 5.

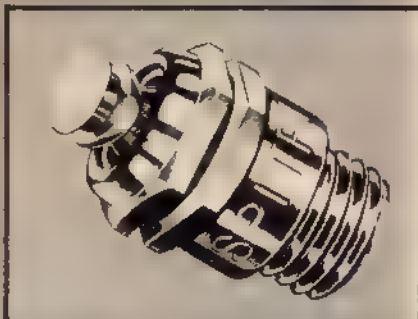


# SHOWCASE

Push the button on 3-In-One Oil-Spra and the oil comes out, under pressure, in form of fine spray. Gives tools, guns and other metal surfaces thin, even film that protects against rust and corrosion. Lubricates hard-to-get-at places. Sold by hardware shops and hobby stores. Boyle-Midway, Inc., is maker. Seems real boon to modelers, for protecting wet or rusty engines, etc.



New model glow plug now from Spitfire Products Co. Internal parts redesigned and new method of winding coupled with a recently developed alloy in the platinum element give up to 3 times the life of former Spitfire plug, according to company spokesmen. Shorter in overall height, it can be identified by its satin-gold iridite finish. Price for new plug remains at previous 65c.



Scheduled for Sept. 15 release is this all-plastic highly detailed scale model kit that is sure to gladden the hearts of many a WW II airplane collector and model fan. Lindberg Products Inc. is responsible for this 11 1/2" span Stuka Ju-87B Nazi dive bomber which spread ruin across Europe and North Africa. Some even ventured over England but suffered high losses. Length is 8 7/8". 98c.



One of leading concerns supplying airplane photos is Aeroplane Photo Supply (Box 195, Toronto, Canada). Latest catalog available for 50c lists almost 5,000 different photos of world's aircraft from Wright Biplane to latest jets. In addition to conventional planes, firm has variety of helicopter and glider photographs, as well as selection on airships and carriers too.



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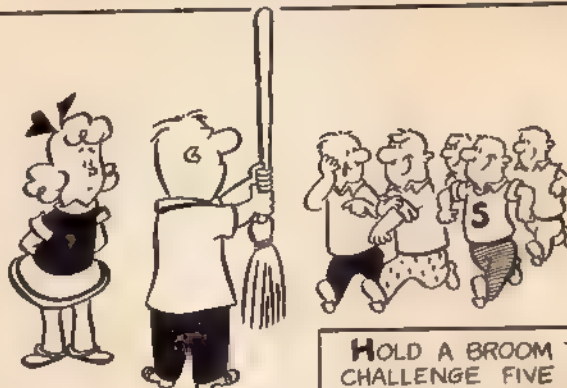
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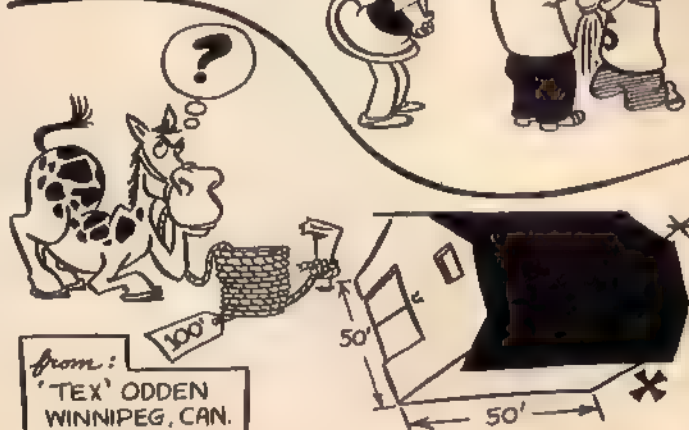
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## What's Your Hobby?



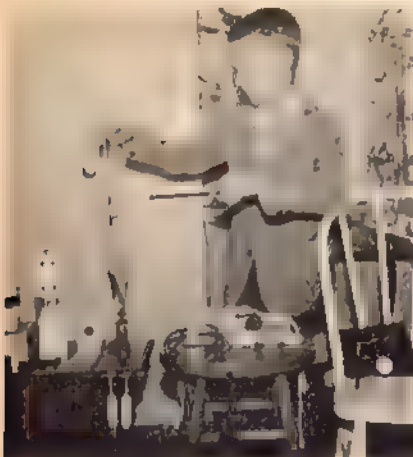
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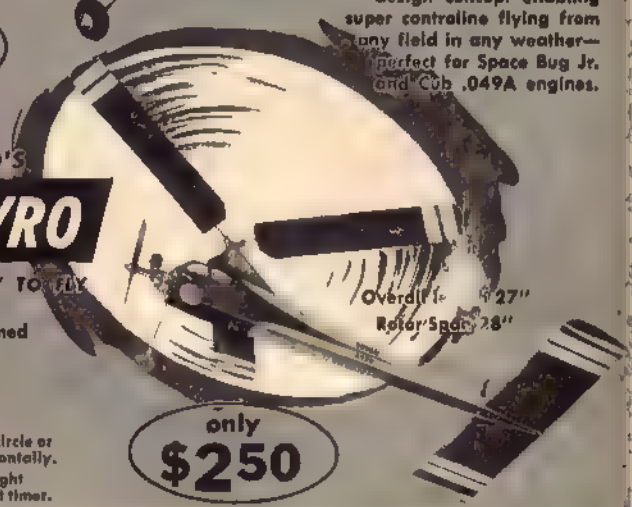
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TUBE CURRENT INCREASES AND RELAY BECOMES ENERGIZED ONLY WHEN TRANSMITTER IS KEYS

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**IMMEDIATE DELIVERY The Most POWERFUL (8 Watt) TRANSMITTER at the LOWEST PRICE. Famous 2 Tube MAC II circuit, featuring GYRO MAGIC TUNING INDICATOR. Completely wired & tested, includes 8 1/2" sectional Antenna remote "clicker" Keying Switch Meter, Ground Plane Booster, Beautiful Cabinet: 12" x 7" x 9". Available in the following models—all with money-back GUARANTEE.**

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**NEW . . . GYRO DELUXE ZY TRANSMITTER** Operates any 27 1/2 Mc STANDARD or AUDOTONE (WAG, Babcock, Receiver) the only high powered Transmitter offering both Standard & Audiotone Modulation—your choice by a flick of the switch; incorporates all features of the famous MAC II model X-1 with 5 W. power only **48.50**

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**STOP WASTING MONEY on dry batteries for your transmitter! Add our 2-VOLT VIBRATOR SUPPLY to any transmitter; output 135 to 180 V.; assembled \$10.85; KIT** **6.95**

**DEEP BOX: Pts. Palm Rotary Type for any Self-Neutralizing Escapement. Not a Kit** **1.95**

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**Ectron JBY STICK CONTROLLER: Automatic Stop Box & Escapement. Controls Rudder, Elevator plus 3 more—fits any Transmitter & Receiver. Both for** **32.95**

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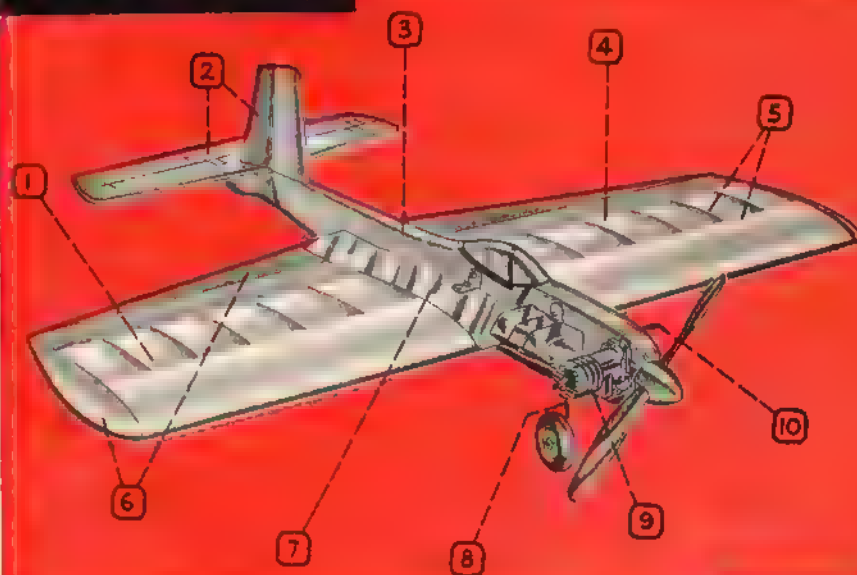
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3140 W. 43RD  
CHICAGO 29

**"JUBILEE"**

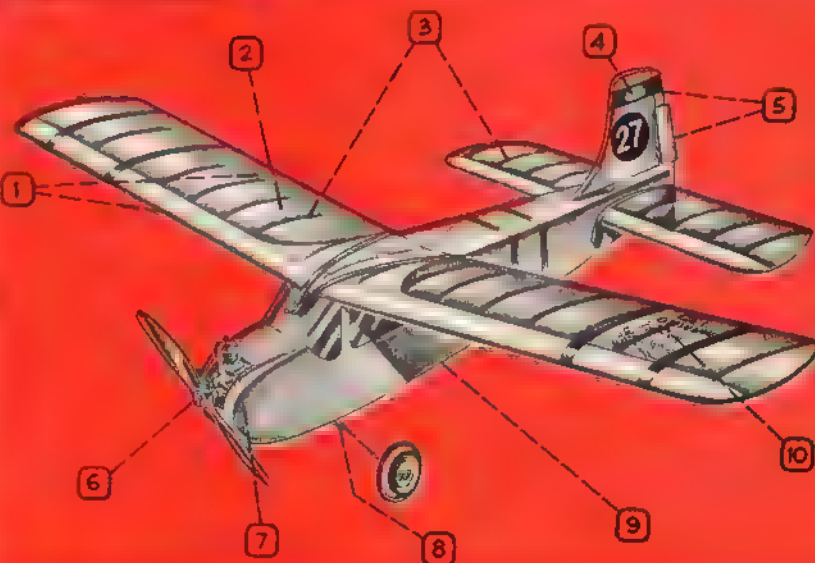
Consolidated Model Engineering Company's sport-stunt-combat control line "Jubilee" spans 40"; has overall length of 23" and a wing area of 432 sq. in. Maximum chord is 11 1/2".

Highlights of kit are: 1) Silkspan wing covering; 2) die-cut balsa tail parts; 3) balsa profile fuselage cut to outline; 4) removable wing halves bolted to fuselage, aligned by dowels; 5) die-cut ribs, hardwood main spar strips; 6) shaped stationary "flaps" and wing tips; 7) special "Esmetal" covering for center section; 8) formed steel wire gear; 9) .19-.35 engines; 10) pre-cut plywood fuselage doublers. Two-piece removable wing permits easy replacement of panel in case of combat damage.

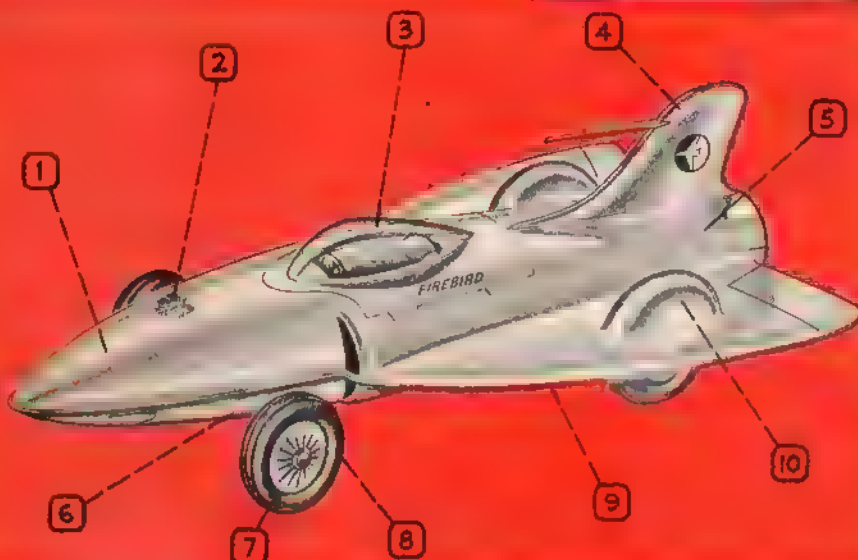
**BLUE RIBBON****BLUE RIBBON**

A radio-control training plane for the novice, or a stunt R/C for the expert, Sterling Models' "Mambo" has a wingspan of 48", overall length of 32 1/2". Plans contain considerable detail and lengthy instructions. Wing and stab chords are constant for ease of construction and for ruggedness.

Features to be noted: 1) shaped, notched edges of wing, stabilizer; 2) Silkspan covering; 3) wing and stabilizer ribs die-cut; 4) die-cut balsa fin; 5) control tab and separate trim tab; 6) .09-.19 cu. in. displ. engines; 7) motor mounts, nose blocks, cut to dimension; 8) formed steel wire landing gear; 9) balsa fuselage sides, formers, die-cut; 10) decal insignia.

**"MAMBO"**

# "FIREBIRD"



BLUE  
RIBBON



■ Paragon's "Firebird" kit (distributed by Berkeley Models) makes up into working miniature of General Motors' experimental gas turbine auto. CO<sub>2</sub> cartridges provide power; 1/4"-to-foot scale car races along wire or fish-line guide line. Overall length, 8 1/4"; width, 3 1/4"; overall height, 2 1/4". Features of note:

Formed Polystyrene body shells; 2) colored decal insignia, etc.; 3) plastic bubble cockpit canopy 4) fin formed in halves; 5) formed plastic receptacle for CO<sub>2</sub> cartridge; 6) formed steel wire axles; 7) rubber wheels with plastic spoke assemblies; 8) instructions for racing along taut wire through axle fittings; 9) formed plastic air scoops; 10) integral formed upper wheel housings.

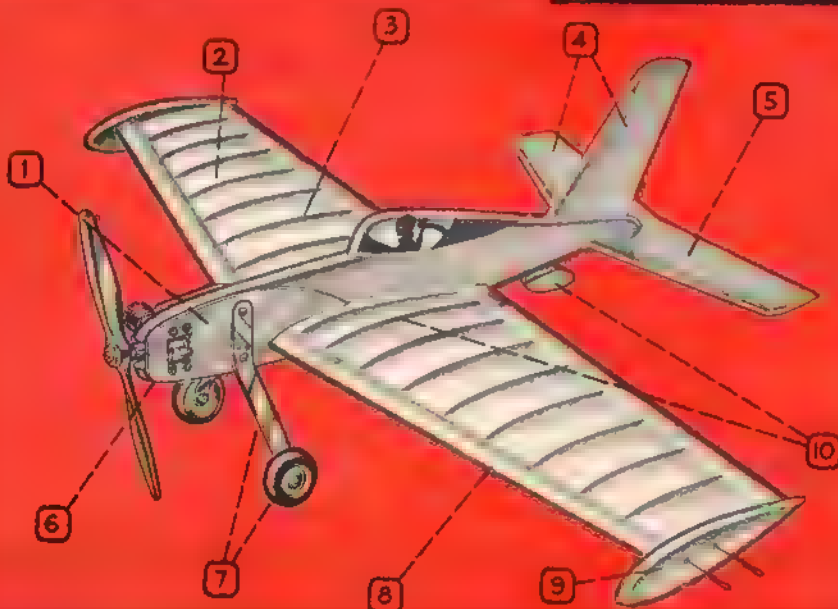
■ Paul K. Guillow, Inc. offers "Trixy" kit plans which show 47 construction steps in photos. Prefabbed control line stunter designed by Lou Andrews. Span, 45"; wing area, 435 sq. in.; length, 30"; weight, 24 oz.; 19 to 36 engines.

Noteworthy features include: 1) plywood fuselage doublers cut to shape; 2) red Silkspar covering; 3) die-cut balsa wing ribs; 4) balsa tail parts cut to outline, edges shaped; 5) ready-made concealed hinges; 6) die-cut, shaped balsa profile fuselage; 7) forced dural gear legs, wooden wheels; 8) shaped, notched leading and trailing edges; 9) shaped balsa tip plates; 10) "Tekwood" jig-plate and tail skid.

BLUE  
RIBBON



# "TRIXY"



## GYRO FREE-NEW Radio Control Catalog The Most Progressive & Reliable RADIO CONTROL SUPPLIER

See Add'l. GYRO SPECIALS on Opposite Page

GAZISTON RECEIVER KIT (July A.T.) w. sub mini Pot, wound coils, drilled base	\$3.00
with tube & Transistor \$8.20; with relay	14.10
SUB MINI Phone Jack-Open Circuit 35c; Closed	.40
NEW! SUB-MINI Phone Plug for above Jacks	.35
ADVANCE RELAYS \$6.00; Price Relays \$8.25 SIGMA 26F	8.50
NEW! NEW! MINI ESCAPEMENTS	
SUB MINI REM RELAYS: 5000ohm \$4.95; 7500 \$5.45; 10,000 ohm.	7.95
NEW! LIFETIME STORAGE BATTERY, Sonotone Nickel Cadmium 1.3 V.-3 A/Hr. 4 x 2 x 3/4 in.	9.00
ELECTRONIC STROBOSCOPE Stops motion of props. Comp. ready to use	17.95
BABCOCK New & Position Controller	12.95
TEDEA TRANSMITTER (Sept. A.T.) Basic Kit	9.75

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Mighty Midget Electric Motor with Gear	2.75
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GYRO 6 REED RELAY permits 6 controls with diagram	\$14.95
GYRO 6 TONE MODULATOR converts any transmitter for 6 separate controls, complete kit	8.45
GYRO 3 TONE MODULATOR KIT, works with any transmitter. Suitable for tuned relay or Safford Receiver (wired & tested: \$11.95); KIT	5.95
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LORENZ DOUBLER Receiver Kit. Less than 3 Ma. RK61 Dra n. Doubler Circuit driving 1AG4 & SIGMA 4F Relay	14.45
CONVERT your regular Lorenz to Doubler Operation-Kit with 1AG4 tube, diodes, cond., instruc.	3.25

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Complete with ong 1/4 RK-61 & XF0-1	9.75
Above with tubes & Sigma 4F Relay	13.95
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Complete with CR528 Tube and ED RELAY	11.45
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JOHNSON 3 Tube, with SUB-QUENCH CHOKES	4.75
Complete with 3 Tubes & SIGMA 4F 3000 Relay	13.95
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ABOVE KITS wired & tested, ready to operate, add	9.00

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CHARGER FOR DRY BTR ES. Use 1 set of A & B's all season!	
Recharges all 1 1/2 to 90 Volts	9.50
VIBRATORS 6 Volt \$1.35; 2 Volt Synchronous	1.00
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New submini. CLOSING, for metering, etc. 15c; RF CHOKES	.20
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1U4, 1U5	.80	308	.80	Transistor	2.50

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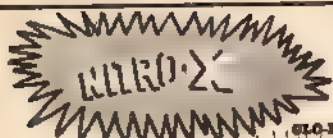
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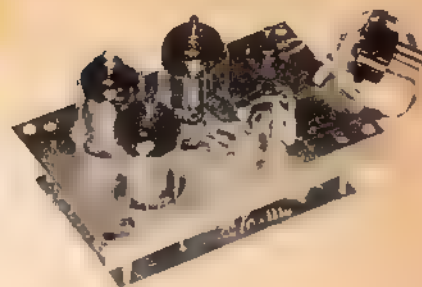
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# CG Electronics' Non-Selective Audio Frequency Equipment



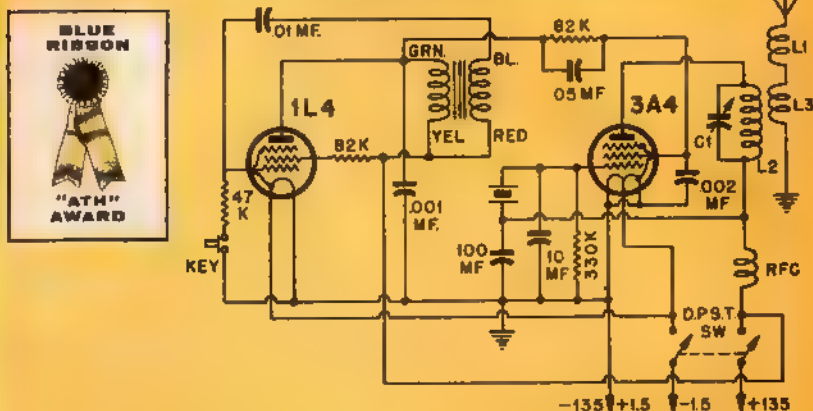
■ This apparatus works on the audio tone principle, but is not selective. That is, any tone over a rather wide range will cause the receiver relay to operate, but it requires a modulated signal to do so—a plain carrier will not affect the receiver. This is considered a safety factor in these days of crowded 27½ mc. work and frequent interference. The fact that no particular modulation frequency is required means also that a reasonable amount of AF drift at the transmitter—as might be experienced if the B batteries were allowed to drop drastically—will not shift the modulation tone out of the range of the receiver.

The equipment we will describe here is manufactured by CG Electronics Corp. (Albuquerque, N. M.), which is successor to E.C.E. of the same city. The R-1 receiver is a three-tube, but since one

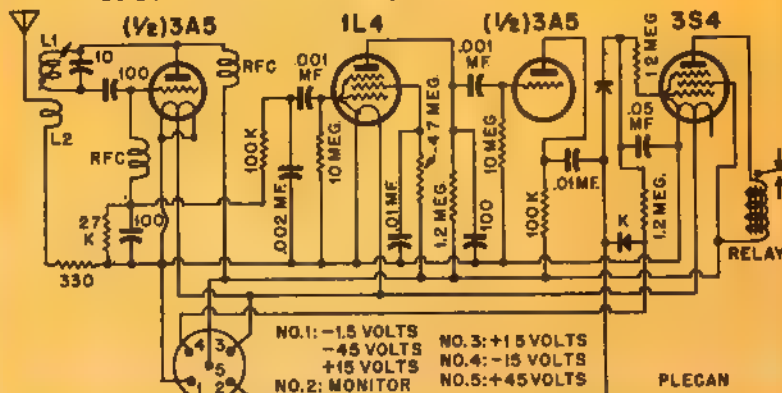
tube is a 3A5, 4-tube results are obtained. The line-up gives a super-regenerative detector, two A.F. amplifier stages, and a relay tube. The circuit is such that the latter draws no current when there is no audio signal coming in, due to the 15 V. negative bias on the grid. The other tubes in the receiver draw the same current with or without modulation, and with or without carrier.

The receiver is of the printed-circuit style, with all components mounted on the etched plate; only the relay and the tuning inductance are on the upper aluminum frame, which has three holes to clear the tubes. The relay is a Jaico "Gem," and in the set we checked was adjusted to operate at 2 ma. and release at 1.7 ma. Since relay current runs from zero to around 5 ma. when a tone is sent, you get solid relay action.

### C.G. TRANSMITTER (T-12)



### C.G. RECEIVER (R-1)



There are four holes in the corners of the aluminum top plate for suspension of the receiver by means of rubber bands, and connections are made to the set by a 5-prong plug on a 9" long cable. A socket for this plug is furnished. Operation of this type of receiver is very simple, as there is only a single control—that for tuning—and the unit is not at all fussy about antenna length. Since the relay current is zero unless a tone is received, this type of receiver is generally considered to be more "fail-safe" than one that idles at high plate current; any breakage of wiring in the receiver A and B batteries, or sudden loss of voltage of these batteries will leave the relay in the same position that it normally has when the transmitter key is not depressed. Flying out of range, or a transmitter failure, gives the same result.

The Model T-12 transmitter sends out a constant signal as long as the power switch is on, and an audio tone of about 700 cycles when the key is depressed. Audio tone systems in general require much less transmitter power than plain carrier (C.W.) systems, and the B drain of the T-12 is very low.

The transmitter is wired by the conventional system (not printed circuit) and all parts are contained in a sturdy steel case, which is painted gray. The tuning adjustment is reached through a hole in the front of the case—a non-metallic screwdriver should be used, since the tuning screw is "hot."

Inductive antenna coupling is utilized and there is a large loading coil in series with the antenna, to attain more efficient signal radiation. The three-section antenna slips through an insulating grommet in the top of the case and is held in place by screwing it onto a threaded stud on the internal chassis.

Since this transmitter operates at very low power, it will not "bend the needle" of a field strength meter. Antenna of the latter should be held close to the transmitter antenna, to get a good reading. The transmitter may be operated with the antenna collapsed, with no harm to tubes or crystal; this makes it most useful for bench tests for simulating the effect of a very weak signal, when checking the equipment in your model.

**SPECIFICATIONS:** Receiver Model R-1. Non-selective audio tone type, for operation on 27.255 mc. Tubes are: 3A5-detector and second A.F., 1L4-first A.F., 354 (only half of filament used) relay tube. Overall size including tubes—3 x 2-2 1/4 x 2 1/4". Weight with tubes—3 1/4 oz. Single control for tuning. Antenna length, 2-4', not critical.

Battery requirements: A—1.5 V at 340 ma. B—45 V; with no tone coming in, 1.6 ma.; with 700 cycle tone, 6.5-7 ma. C battery, 15 V.; no current drain.

Transmitter T-12. One 3A4 tube as crystal oscillator, one 1L4 as modulator. Overall size—8 x 4 1/2 x 3 1/2". Weight with batteries and antenna—4 lbs. Single tuning screw, On-Off switch, and Keying button on front panel. Three section antenna extends 19" above case when collapsed, 55" when extended.

Battery requirements: A—1 1/2 V. at 255 ma. B—135 V.; 6 ma. with key up, and 8 ma. with key depressed. Case designed to hold one size D flashlight cell and two 67 1/2 V. B. batteries (Eveready 467 or equiv.).



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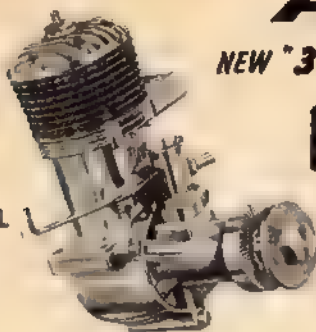
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"This Chris-Challenger," writes Guy Barrette of Chicoutimi, Canada, "is controlled by a Boomerang radio (single channel) to which I added proportional control unit built by me. Clock motors are used for reduction gearing. Boat is built of balsa and mahogany, is 33 inches long, has a beam of 11 inches, required 500 hours of my spare time, and twelve tubes of cement. It is a Dumas product kit. I was greatly helped by your magazine which contained all the information I needed. Boat is propelled by two Super Dynamic electric motors run by two 6-volt batteries. When rudders are full right the motors stop. Thus I can stop the boat at will. I had some excellent runs with it on Saguenay River this summer. The radio seldom fails."



Do you have a favorite model? Tell us about it and include some good clear photographs (black and white only, please—no color). Send your entry to My Favorite Model Dept., c/o Air Trails HOBBIES For Young Men, 304 E. 45th St., New York 17, N. Y. We will return any contributions not used, but cannot assume responsibility for them (don't send negatives unless requested). We pay \$25 for photo(s) and story that appear here. Any type of model is eligible, working or non-working, plane, boat, car, or train.



# Hobby Shop Directory

Model Builders! Here's a listing of the nation's leading hobby shops. You'll want to file it away—and when you're in the neighborhood, drop in and browse around. They're expecting you.

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(Continued from page 73)

off the Bay ice. It's about 12 years old, but still flies beautifully. Frequently Mr. Bent will fly all afternoon in winter weather when it is below zero. We have an ice boat that looks just like an airplane that's lost its wings—and does it go! Mr. B retrieves his planes with that. Sometimes as many as 50 turn out for off-the-ice flying. Right now we're all busy with model boats. The Green Bay club is composed mostly of radio control fans."

Hey, Dad, got the fare to Green Bay? When we get there let's look up the Bents at 111 Main Street!

—THE DOPESTER

**Western Round-up.** The Central Valley Club of Tulare-Bakersfield and Fresno have put up a "Challenge" Trophy to be competed for by four-man teams from each club. There will be three different contests—one in each city. At the first round in Fresno despite two firsts and a third by Bill Peacock of Tulare, Fresno totaled up 19 more minutes than Tulare

to go off into a rather imposing lead and it will be hard to head off in the last two meets. For some reason or another Bakersfield didn't even show up, so they are now some 46 minutes behind.

Fresno also has another unique trophy which is a come-on to all the flyers. It is held by the flyer with the highest contest time until his time is beaten. This "Fredrickson" trophy is currently held by Joe Lobbis with the time of 26:25 which will be hard to better.

Next Issue:

So You Want to Open a  
Hobby Shop?

Read the whys-'n'-wherefores

While on the Central Valley news, the clubs make announcement of their second big "Central Valley Free Flight Meet" which is to be held this October 25. Events will be much the same as last year—Half-A, A, B & C with Nordic

Glider an added event, since this model is rapidly gaining favor in this section of the country.

**No Fuse Meet.** The Westchester Exchange Clubs contest held at Sepulveda Basin found a lot of events, a lot of trophies, few model builders flying, even fewer timers. The sad situation of "no fuses" still keeps entrants away by the droves. They come down and watch, and those who have had no experience with dry ice and who are brave enough to try it seem invariably to run into trouble. Even with all this, we find that this basin is a good flying place—usually full of good flying air, but sometimes just as full of downs.

Sweepstakes winner of a trip to the Nats was Merrill Combs who has some good ships and does a lot of nice flying at every contest. Biggest surprise was undoubtedly his win in hand-launched glider.

Other outstanding flying was by Phil Craft, who puts his very neat, clean  
(Continued on page 89)

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## Hobby Club Emblems



The initials F.M.A. stand for Federacion Mexicana de Aeromodelismo, a large model club in Mexico City. Organization consists of two sections, one for free flight and the other for control line activities. Latter are most popular, especially stunt. Club's 100 members meet in leading hobby shop.



Chartered member of AMA, the club is active in organization of local meets such as Annual State Wide Model Airplane Contest under AMA sanction. Events include full control line and free flight. Awards usually consists of trophies for 1st place and merchandise for 2nd and 3rd. Headquarters at 2836 So. 16th East, Salt Lake City, Utah.



Club was established for military personnel in Atsugi, Japan area. It is composed of Navy and Marine personnel of the Naval Air Station who are interested in all phases of model construction such as planes, race cars and trains. Has access to two flying circles with control tower and race track.

Send your club insignia—with info on your group. ATH will pay \$10 for each emblem and report used here. Type data and send only printed emblems or decals—no pencil or rough sketches can be used.

## Air Trails HOBBIES For Young Men

OCTOBER, 1955

### ADVERTISERS INDEX

Ace Radio Control	14
Acme Model Eng. Co.	79
A-J Aircraft Co.	79
Amzrell	84
American Talcote, Ltd.	76
America's Hobby Center, Inc.	8, 9
Babcock Radio Engineering Co.	82
Berkeley Models, Inc.	80
Bonner Specialties	88
Brown's Hobby Center	87
CG Electronics Corp.	15
Cavacraft	77
Comet Model Hobbycraft, Inc.	76
Consolidated Model Engineering Co.	71
Crosby's Hobby Centre	87
Darwin Model Aircraft Co.	79
Dealers Hobby Supply	70
de Golt Model Engineering Co.	87
Dumas Products	53
Dyna Model Products, Inc.	78
E and H Model Hobbies	73
Eastern Hobbycraft	72
Embry-Riddle School of Aviation	17
Enterprise Model Aircraft & Supply Co.	84
ESSCO	37
Eureka Importing Co.	61
F-B Model Aircraft	17
Forster Brothers	86
Francisco Laboratories	16
Grish Brothers	76
Paul K. Gullow	63
Gull Model Airplane Co.	87
Gyro Electronics Co.	82, 83
Hawk Model Co.	65
Herkimer Tool & Model Works	Back Cover
The Hobby Den	87
Hobby Helpers	68
Ideal Models	61
Indiana Technological College	84
JAICO Products	76
Joe's Hobby Center	70
Junior Sales Club of America	10, 11
K & B. Allyn Co.	3rd Cover
Kap-Pak Products	83
Key Specialties	72
L. I. ESSCO R/C Products	■
Master Modelcraft	7
Midway Co.	84
Midwest Products Co.	84
Miniature Aircraft Corp.	69
Mod-Ad Agency, Inc.	8
Model Craft Hobbies, Ltd.	65
Model & Hobby Industry	88
Model Shipways	85
Model Trains Magazine	58
Monogram Models	35, 71
O. F. Mosberg & Sons, Inc.	68
Mutual Broadcasting System	58
Les Myers	67
National Broadcasting Co.	77
North End Hobby Center	87
Northrop Aeronautical Institute	12, 56
Octura Models	70
Pastra Chemical Co.	2nd Cover
Park Hobby Center	87
Parks College of Saint Louis University	3
Perfect Parts Co.	73
Pico Model & Hobby Shop	67
Radiomodels	81
Raytel	72
Rich's Hobbytowne, Inc.	87
Russell Bros.	88
Scientific Model Airplane Co.	52, 53
Simon & Schuster, Publ.	69
Skip's Island Hobby Shop	87
Southwestern Model Mfr.	72
Victor Stanzel & Co.	85
Sterling Models	18
Stroukoff Aircraft Corporation	18
Sullivan Products	16
Tester Chemical Co.	46, 47
Tri-State College	14
Trost Modelcraft & Hobbies	82
United States Air Force	5
X-note, Inc.	64

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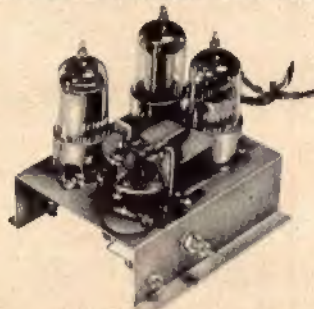
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(Continued from page 87)

originals way upstairs consistently, won A with a perfect 18 minutes and Class B with 14 plus. Old Wakefield man Andy Faykun surprised all of us and himself in winning Half-A. Ray Berens dusted off an old Wakefield for 22:36 to a new record in the Unlimited class, which incidentally is enjoying a big season, bringing out a lot and more airplanes than competed in the past two years.

### Coming in Young Men Next Month— Scale Hydro-foil Model Boat

Other winners were: Half-A Junior, Bill Kluss; A Junior, R. Epstein; B Junior, R. H. Gower; C Junior, B. Goetzinger; Hand Launch Junior, C. Kaiser, and Unlimited Junior, Bob Wood. In the Open class, besides those already mentioned: C Open, Sal Taibi. Towline, Louis Culler. Times in all events were high; this was Bob Linn's first try at a big contest—he missed some things but you can bet that he learned a lot and is to be complimented for getting things running as well as he did with so little help—wait till next time, it will be a good one, we know.

**PAA-Load.** At the Thunderbugs PAA Contest we hit a few surprises. First of all was Major John Rice who drove down from Nellis AFB for the contest. John is an old-timer who was keenly competitive in the rubber models back in the Jordan Marsh days in the northeast section of the country. He was one

of many, many fellows flying the Woody Blanchard designed Berkeley "Payce." James Lang made an unprecedented flight of 1:53 with 35 ounces of cargo, and then to prove this was no fluke put up 40 ounces for a new record with a flight that was almost as long. James states that his flights at the Nats will be with 50 ounces! James used a ship which looked heavy, plenty of ½" plywood around the nose for extra strength, and the Thermal Hopper had a unique plywood mount which he covered with aluminum foil for protection from fuel. His timer tank set up was very much differently in that he used two separate tanks, one for running the engine, the second for time, shutting off the first one when the ship was ready for take-off; very reliable too.

A very unusual incident happened when Dick Everett was talking Sal Taibi's ship into staying up so he could get beat, while Sal was talking his ship down so he couldn't win first. As it turned out, Sal beat Dick by 20 seconds; Sal got the Globe, Dick the Barometer. Bob Moncrieff and Harry Gould entered into this same type of flying in Half-A but Harry won out. Both Sal and Harry had already won Globes at San Diego and really wanted those barometers. Bob Patchin had what in our opinion was the best-looking design in his International, clean and slick with about 600 square inches; he proved his designs by winning two first places: Half-A and A.

**Larks R/C.** This same day we drove over to Mile Square to visit the Larks' monthly R/C contest. Dean Kenny was right back on the beam with another Multi-Control first while Chuck Boyer now has his name on both event perpetuals by

winning Single Channel. Incidentally, the West R/C boys like the idea of single channel which allows motor control, so —most contests see this in operation.

Most amazing was Howard Bonner's tiny multi-channel shoulder wing model R.O.G.ing on hubs, flying inverted with the engine cut since it has a tendency to duck with power on, completing this maneuver, rolling upright, then landing.

The Larks are a very active club, have a large participation at their monthly contests, with lots of new ships out every month.

—DICK EVERETT

### "Teenie-Genie"

(Continued from page 51)

gines for this ship are the very light weight high rpm jobs. We prefer to use Kaysun plastic props on the Wasp-type engines and Tornado woods on the Space Bugs. For lines, we have found the very fine steel wire to be anarlingly uncooperative; Nylon is better, but it takes a set and holds bends which may catch after a few loops. Best we've found to date is #20 mercerized crochet thread. Stretch it fairly tight, and go over it two or three times with a wad of absorbent cotton which has been dipped in somewhat thinned hot fuel proof dope.

Remember—always check your lines carefully before each flight!

**Is Electronics for You?  
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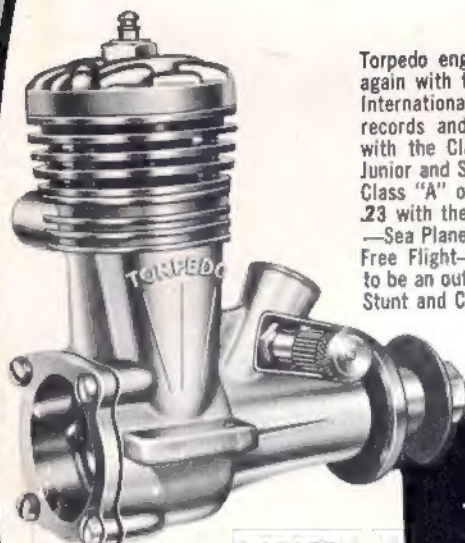
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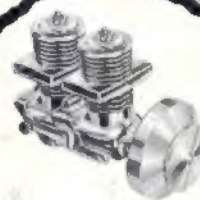
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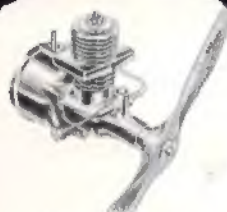
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